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COMMUNITY VIEWS CONCERNING URBAN FOREST RECREATION RESOURCES, FACILITIES, AND SERVICES

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CHAPTER 1. INTRODUCTION

Rivers have long played an important role in man's history. Many urban communities have developed along major river systems and their tributaries. Rivers originally served these large cities as commerce and transportation routes, as sources of drinking water and receptacles for wastes. In addition, rivers and their adjacent lands have provided for a variety of recreational activities, ranging from swimming, fishing, and hiking to elegant parties aboard luxury riverboats. During the industrial revolution, as rail and trucking routes began to improve and expand, the urban waterfront began to lose its role as a hub of activity. As industry left the waterfront to take advantage of more convenient shipping, people also moved their homes away from the waterfront. As the city expanded away from the waterfront, the river usually became a dumping site for the city's wastes, which contributed further to the decline of the status of urban rivers (Harney 1979:7). Many large cities today are completely oriented away from their rivers: "The water is seen more as a barrier than a valuable cultural and recreational resource." (Moncrief and Canup 1974:31). Harney (1978:7) refers to this secondary status as the "Cinderella syndrome", alluding to the potential that may be present within the river corridor.

In recent years there has been a significant increase in recreational use of this country's waterways, a trend that is expected to continue (Hecock 1977). Nash (1977) attributes this rapid increase to recent changes in American attitudes resulting from a change in environmental circumstances and lifestyles. The change from a

predominantly rural to predominantly urban population has changed the nation's perspective so that what was once feared for solitude is now sought for relief. Technology has also improved. Treatment of wastes has improved the quality of the resources. Dam construction and flood plain building regulations have addressed some of the problems of flooding. In addition, activities that were once considered dangerous are now labelled challenging, and expensive pursuits are now more affordable to more persons.

Another significant trend is the continuing climb of fuel prices. Due to these ever-increasing prices, it is expected that people will look closer to home for recreation (O'Leary and Yu 1979). It has also been found that residents' preferences for outdoor recreation emphasize the use of water and forest resources conjointly. Urban rivers can thus be expected to become more widely utilized for recreation.

The rivers cannot be considered without looking at the lands along the river. Adjacent floodplains and corridors contain a substantial amount of the remaining forested areas in and near urban communities, especially in the midwest. For example, in Indiana, this is apparent when examining LANDSAT imagery of the state and noting the red vegetational zones paralleling the rivers. These vegetational zones provide important wildlife habitat, enhance the aquatic habitat along rivers and streams, and are very interesting and valuable recreation resources for activities such as hiking, fishing, canoeing, hunting, etc. The forest-water interface in the urban setting provides a very pleasing setting that offers enjoyment and tranquility

to those who use only the riverbank, as well as users of the river itself (Kaplan 1977).

City officials and planners are beginning to realize the significance of their river corridors, as evidenced by the fact that, of 107 major U.S. cities surveyed, over half were implementing major waterfront redevelopment plans (Cassidy 1979). Successful riverfront developments vary in scope and nature, ranging from a small three-quarter acre park in Brooklyn, New York (Grand Street Park) to the 23 mile long, 5300 acre greenway along the American River in Sacramento, California. One of the most frequently cited examples is the River Walk, or Paseo del Rio, in San Antonio, Texas. The River Walk is a highly developed, heavily-used, well-landscaped blend of businesses and recreational opportunities. The commercial-natural combination is very successful and is popular with both visitors and residents of San Antonio (Gunn et al 1972).

These examples and many others show that urban rivers can serve as valuable recreation resources. Yet in many cities, rivers and their adjacent lands are still largely untapped or underutilized resources. Moncrief and Canup (1974:30) feel that this may be due to public opinion: "Public attitude is the crux of the urban river reclamation problem. The psychological barriers against urban waterways must be removed before a redevelopment program can be entirely successful." This suggests that the perceptions of users and potential users must be considered in planning for use of the river and adjoining lands, so as (1) to meet perceived deficiencies that may be barriers to recreational use of the river corridor and, (2) to

provide facilities and programs that are of interest to those who would benefit from recreational development.

Statement of the Problem

With the increase in planning activity for urban river development, it is clear that the perceptions of the clientele should be incorporated into the planning process. Past studies of recreation environment perceptions have often relied upon information about the level of satisfaction expressed for physical and social features. Results show that the translation of this information to recreation needs is still in need of investigation. One of the most important steps that must be addressed is determining not only how satisfied people are with physical and social features of a recreation system, but also how important different components of the systems are to them. Then a method must be utilized that will discriminate between the attributes for making decisions.

In response to these needs, the objectives of this study will be to:

1.) Identify physical and social features that are important to consumers in viewing an urban river corridor as a recreation resource;

2.) Test the application of a marketing methodology in evaluating the performance and importance of physical and social features;

3.) Apply this evaluative scheme to an actual field situation.

CHAPTER 2. REVIEW OF LITERATURE

Much of the recent recreation research dealing with perceptions has concentrated upon the visitor's satisfaction with a particular experience. Overall satisfaction in any situation refers to the degree to which actual experience agrees with the expected reward (Peterson 1974). It is on this premise that much of the recent satisfaction research has been based. River-running on whitewater rivers has been studied to discover what effects density and crowding have on satisfaction (Boster 1972; Schreyer and Roggenbuck 1978; Graefe 1977; Heberlein 1977; Lime 1975; Nielsen and Shelby 1977; Heberlein and Baske 1977). Such studies have found that recreationists are generally satisfied with their experience (USDI 1979). Unfortunately, general measures of satisfaction or dissatisfaction are of limited use to the recreation planner seeking to improve recreational opportunities. To be of value, information must point to specific problems and user needs/desires. One means of doing this is through attribute analysis, a tool used in marketing research to study the components of a product, identifying separate physical, social, and psychological attributes. Recreation researchers have also recognized in recent years this need to expand the study of individual attributes that contribute to satisfaction (Heberlein 1977; Shreyer 1979; LePage 1981).

However, not all of the attributes of a recreational facility are likely to be of equal importance to the recreationist in determining his/her satisfaction with an experience. A recreation planner or manager needs to be concerned with those attributes that

recreationists perceive as being important to their desired experience.

It is only recently that this concept of importance has entered satisfaction research. Most often researchers attempt to identify experience attributes that are important to the visitor's assessment of satisfaction (Harris and Rosenthal 1981; Ditton et al 1981; Krumpe and McLaughlin 1981; LePage and Blevins 1981). Preferences for specific experiences are often assumed to be important decision variables (Brown and Ross 1981). Seldom are measures of importance collected, however. The term salience is also used frequently and is equated wtih importance in much of the recreation research literature.

It is interesting to note that in the marketing literature the idea of importance, or salience has been recognized for some time. Myers and Alpert (1968) recognized that not all product attributes are equally important in determining consumer preferences. In the marketing context, salience, importance and determinance are considered by some to be separate entities. Heeler et al (1979), define salience as a "'top of the mind' awareness of an attribute" that may or may not be important in the buying decision. An important attribute also may or may not affect the decision to buy. The example given is that of the wheels on a car, which are certainly important, but if all models meet a satisfactory level of performance, it is not a determinant. A determinant attribute is one that leads to a decision on purchasing a product. This marketing research is important in recreation in the sense that selecting a recreation experience to participate in can be likened to purchasing a product. The decision-making processes are intuitively similar. When marketing

a product, researchers attempt to gauge consumers' perceptions of that product and try to determine how to better meet the consumers' preferences so as to obtain a larger share of the market. Since recreation planners are attempting to meet the needs of a particular consumer, the recreationist, some of the techniques used in marketing would seem to be applicable here.

Importance-Performance Analysis

From the above marketing concepts evolved importance-performance analysis, a technique for measuring attribute importance and performance as perceived by the consumer. Importance-performance analysis allows for simultaneous comparisons of features of a product on a two-dimensional grid, and suggests actions that can be taken to achieve one's marketing goals. A few examples are noteworthy. Martilla and James (1977) first utilized importance-performance analysis in assessing an automobile dealer's service record. Fourteen attributes were identified that were believed to affect service department patronage. Respondents were then asked to assess the importance of each feature and their satisfaction with their dealer's performance.

Another example, based upon Martilla and James' study, was discussed by Blake et al (1978) and was termed the Action Grid Approach. The Action Grid presents information on a two-dimensional grid that is directly useful in designing a market strategy, and as implied by its name, suggests priorities of actions that can be taken to achieve one's marketing goals.

Blake and O'Leary (1979) utilized such an approach in a third example, a study examining community views toward facilities and services and identifying areas of the community that need attention by leaders. The Action Grid provided a visual display that was easy for citizens to understand and, as such, provided a valuable public relations tool. This community study and other similar ones, proved to be highly successful.

Importance-performance analysis was also used to study fertilizer product/service needs, buying behavior, attitudes and preferences of farmers in Indiana (Funk and Downey 1981).

Planning for a resource system like a river corridor requires consideration of attributes much like those noted in the car dealer service study and the other examples. The product under study is the urban river recreation experience. Elements of the product need to be identified, as in the examples above, for the consumer to evaluate. Studies conducted concerning river recreation have identified a number of elements as being important to the recreationist in terms of experience. Although much of this previous research was conducted on non-urban rivers, the basic elements may be translated into an urban setting and can be used to accurately describe an urban river as a recreation resource. Urban recreation literature might also aid in discovering elements that are of importance to an urban river user.

Important River Attributes

Several categories of attributes can be identified: water quality, setting, access, diversity, safety, kinds of activities, and expected outcomes. Literature on river recreation indicates that

water quality is one of the attributes discussed most frequently as being important to river users. "Water quality is a most important factor influencing the recreational uses which are made of water, as it affects the quality of the outdoor recreation experience" (USDI 1966). Poor water quality has been credited with causing a loss of recreation potential (Indiana Department of Natural Resources et al 1978). On the Milwaukee River, pollution is believed to have caused an annual loss of 211,500 activity days (UDSI 1965). Water quality may be manifested in properties such as odor (Gunn et al 1972; IDNR 1977), amount of aquatic vegetation (Gunn et al 1972, IDNR et al 1976), turbidity (USDI 1965), color of the water (Moncrief and Canup 1974), presence of solid wastes (IDNR 1977; Bauman and Chubb 1976), and presence of disease pathogens and bacteria (Bauman and Chubb 1976; Brown and Reetz 1976). Brown and Reetz (1976) suggest that perception of water quality is more important than actual water quality in decisions concerning use of water for recreation (also Moncrief and Canup 1974). Zube et al (1976) and Nicolson and Mace (1975) point out that the visual image of the river is the means by which users perceived water quality much of the time.

Setting. The setting along the river is also a very important consideration. Litton (1977) identifies five factors of setting: landforms, vegetation patterns, water presence and expression, human use and impact, and other influences (climate, seasonal change, elevation, etc.). Whitman (1968) concluded that people prefer undeveloped natural areas and open spaces, and concludes in the abstract to his book that "esthetically pleasing rivers have a high degree of natural environment including water, vegetation, habitat,

scenic channels, flood plain, and valley vistas" (Whitman 1968). Landforms and vegetation together create an open space, an important component of the setting. Water also creates open space, helping create opportunities not only for recreation on or in the water, but also makes many others possible along the shore, partly because of this feeling of spaciousness it creates (Clawson 1969). Vegetation is also important to the setting. Trees not only add to the natural appearance of an area, they provide shade on hot days. This is very important in cities, where a respite from the heat is often difficult to find (USDI 1978). Trees and other vegetation also provide wildlife habitat. Observation of wildlife in a natural setting is seen as wholesome and contributes to the enjoyment of the situation (Headstrom et al 1974). It is highly desirable to see birds and wildlife along the river (Kennedy and Unhanand 1974). Maintenance of the visual site quality, especially litter removal, is critical in contributing to a pleasing "natural" setting (Sloan 1966; Milwaukee River Technical Study Committee 1968; Gold 1974).

Access. Access is considered of prime importance to urban river utilization. "An environment must be accesible not only in physical terms, but also in psychological and visual terms." (Newby 1971:69). Access can be limited by physical barriers, such as highways or railroad tracks, or visually and psychologically restricted by blight and disuse. Both opportunities for access and facilities for access to a river should be available (IDNR 1977). Many urban riverfronts are inaccessible because of a privately owned or decayed waterfront. In cities such as Detroit, almost the entire waterfront is privately

owned (USDI 1978). The proposed Riverside Park extension will provide the only reasonable stretch of public access along the riverfront. Provision of public access is one of the goals along the Willamette River in Portland, Oregon. Lack of contiguity among recreational areas can present barriers to access, as in Denver, Colorado. By locating recreational areas near other such areas, and connecting them, via trails, access to each is enhanced and recreational opportunity greatly increased. Joining recreational areas is one of the development goals of the South Platte Riverway in Denver. In Austin, Texas a linear park on both sides of the Colorado has been successful in linking residential areas, recreational areas, and the central business district (HCRS 1978). This also increases access, as people can utilize recreation areas during lunch breaks. Areas close to homes or to work and shopping are more lively and more frequently used. "Urban residents in all jurisdictions studied placed high priority on close-to-home recreation facilities." (Mitchell 1978:29). Many urban rivers can meet this need if adjoining access is provided. The identification of access points, so that users are aware of how to reach the river (such as boat ramps, etc.) increases access. (Gunn et al 1972; IDNR 1977).

Transportation to the river must also be considered. Availability of public transportation and the perceived convenience and safety of that transportation are complementary factors (Gunn et al 1972). When looking at public transit, cost and safety both must be kept in mind. If a bus route is considered unsafe or too expensive, recreationists will stay at home unless other alternatives

are available (Clawson 1969). The ease of access will, in part, determine recreational usage (Gratzer and Alkiewicz 1978).

Settings and Activities. A diversity of settings and activities are important to recreationists (Gray 1970; Jacobs 1961). Pittsburgh's Southside Riverfront Park was designed with this in mind. A community survey identified desired new facilities to be the following: picnic areas, a boat ramp, river trail, fishing spots, playgrounds, and an amphitheater-band shell. The most successful urban river developments are those that provide many types of opportunities, such as the Savannah Riverfront with its mix of shops, restaurants, and recreational opportunities (much like the San Antonio River Walk). Tulsa, Oklahoma is also expanding its riverfront along the Arkansas River to provide a wider variety of commercial and recreational facilities. Activities that are popular or that may be desirable in an urban river setting are widely varied. Gans (1968:122) reports that "Almost every study which has interviewed people about leisure-activity preferences has shown that the most frequent demand, and the first mentioned, is swimming facilities." Whitman's study (1968) affirms this, listing swimming, driving for pleasure, outdoor games and sports, and walking for pleasure as the top four summer activities. Waterskiing, boating, canoeing and kayaking can also be expected to be popular along rivers (Ohio River Basin Study 1969; IDNR et al 1976). Lynch (1971) contends that people have strong interest in motion in an open space. Thus activities such as cycling, driving for pleasure, and hiking will not only be popular, but may serve to draw observers to an area. Other activities that are motion-oriented that may be popular in an urban river setting are

jogging (HCRS 1981), horseback riding (IDNR et al 1976), walking for pleasure (Whitman 1968; Ohio River Basin Study 1969) and playing outdoor games/sports (Whitman 1968). More passive activities such as picknicking, sightseeing (Outdoor Recreation Resources Review Commission 1962), fishing (IDNE 1977), visiting a zoo or museum (Gans 1968), using playground equipment (Shivers and Hjelte 1971) are also popular. Supervised programs at playgrounds and indoor sports facilities were found to be lacking in most urban areas (USDI 1978). People also enjoy learning about nature. River rafters list outdoor education as one of the reasons for taking their trip down the river (Heberlein and Vaske 1977). Activity items for this study were taken from several other surveys (Tubing/Rafting Study 1979; River Corridor Study 1979), and from river recreation literature. For water sports such as water skiing, boating, etc., both the opportunity to participate and the facilities (boat ramps, etc.) must be available. Activities with other people are usually high on the list of preferred activities in an urban setting (Jacobs 1961). Gans (1968:122) contends that "What most people seem to want most urgently is not communion with nature, but the opportunity for individual and family activity of a not too strenuous nature which can be conducted outdoors." Companionship with friends is also an important motive in some river trips (Howard et al 1975).

Safety. Safety is always a factor in urban recreation. Gold (1973) maintains that a feeling of fear has led to decreased usage of neighborhood parks, despite a national study of crime in parks which found that there is far less violent crime or anti-social behavior in

parks than on the streets or in the home (Malt 1973). However, crime and vandalism have decreased use in some inner-city parks (Mitchell 1978). This concern is manifested by a fear of certain "undesirable" elements, often racial minorities (Gunn et al 1972). Law enforcement can improve the security image of an area as along the San Antonio Riverwalk (Gunn et al 1972).

Other attributes. Other attributes that have been identified for this study fit into no particular category. Facilities for handicapped citizens and senior citizens were identified in the National Urban Recreation Study as being necessary and in short supply.

Marion County and the White River are of particular interest to this study because of the recent increases in interest toward recreational development of the river. A private development commission, the White River Park Development Commission, was formed to design and implement plans for a world class park in the downtown area. The Indiana Department of Natural Resources also has plans for developing a corridor system of recreation sites along the White River from Muncie, Indiana to Martinsville, Indiana. Thus, two more attributes, "County vs. Neighborhood Development" and "County vs. Downtown Development", were added to assess citizen attitudes toward the proposed developments.

Also to be considered when determining performance of a recreation system is whether or not a recreationist's expected outcomes are achieved. As much recreation research attests, satisfaction is a product of fulfilled expectations (Schreyer and Roggenbuck 1978; Becker et al 1979; Heberlein et al 1979). Some

of the outcomes used in this survey include: meeting people, privacy, experience beauty, escape from routine, try skills and abilities, exercise and physical fitness, escape from pressure, develop skills and abilities, and observe people (Driver and Brown 1978). These items were selected from the larger item pool because they were believed to be most applicable to the situation under study. Driver and Brown's item pool has been used extensively in recreation research on western rivers and has demonstrated a high degree of reliability

An urban river corridor and a recreation experience in such a setting are both highly complex, as has been shown by the many possible attributes discussed. A means of dealing wtih this vast range of management/planning considerations is necessary. The Urban River Recreation Survey was designed with this in mind.

CHAPTER 3. METHODS

The objectives of this study were to identify physical, social, and psychological features of an urban forest/river system that were of importance to recreationists, and to test importance-performance analysis as a technique for examining attitudes toward a river corridor.

Data was collected during the summers of 1980 and 1981 utilizing a two-step survey procedure. The first step involved personal contact, and a mail questionnaire, entitled the Urban River Recreation Survey, constituted the second step. The White River, which flows through the metropolitan Indianapolis, Indiana area, was selected because of its suitability to the purposes of this study and its proximity to Purdue University.

Because of the relatively low use of the river and its banks on weekdays, it was decided to concentrate all sampling on Fridays, Saturdays, Sundays or holidays. From all weekend days and holidays during each summer (1980 and 1981), 20 interview days were selected, using a random number table: A map showing locations of sampling areas can be found in Appendix E. No deliberate order was followed in visiting the sites, so that all sites were visited at all times of the day over the course of the summer.

The character of the different locations varied widely. The White River Canoe Rental, located in the northern part of the city, is the only commercial canoe rental on the White River in Indianapolis. It also has a boat ramp. Broad Ripple Park is located in the village of Broad Ripple, a middle-income neighborhood undergoing transition.

Many of the park's facilities are run-down and in need of repair. The park provides a pleasant natural setting along the river due to large old trees and grassy areas. Picnic tables, playground equipment and a shelterhouse are available and heavily used. Westfield Boulevard crosses the river at a bend in the river and the bridge provides some shade for this popular fishing spot. A small amount of parking is available near the bridge, where one can see people fishing at all times of the day.

There are many popular recreation spots along the White River Parkway located along both banks of the river. These represent both designated and non-designated sites. Most of the designated sites are very spare, providing only parking, trash receptacles, and an occasional boat ramp. Most of these areas, however, do have trees that provide shade. Non-designated sites are characterized by difficulty of access with steep banks and a lack of shade (except, of course, for those located under bridges). Fishing is the predominant activity at these locations, though picnicking, waxing one's car and camping also take place. As one progresses south (toward the downtown) visual quality of the river and its banks decreases.

During the summer 1980, people were contacted along the White River at these various recreational areas, and each person 16 years of age or older was asked to fill out a contact card with eight questions and spaces for the recreationist's name and address (See Appendix A). On high-use occasions, every fifth person 16 years or older was asked to complete the card. This sampling procedure is similar to that employed in other river recreation studies (See Boster 1972, Graefe 1977). The card, which took approximately five minutes to complete,

contained questions dealing with activities participated in that day, transportation to the river, time spent at the site, importance of trees and shade, and a visit rating. The location and date of contact were recorded on the contact card by the interviewer. The same card was also used in 1981. During 1981, race and sex of the respondent were also recorded to aid in keeping more complete records of descriptive characteristics. There were few refusals to fill out the contact card. In several instances, however, respondents were unable to read or write, in which case the questions were asked by the interviewer. The Urban River Recreation Survey was mailed along with a personalized cover letter and a self-addressed, stamped return envelope, usually 2-3 days after the interview was conducted. A postcard reminder was mailed a week after the initial mailing, reminding those who had not yet returned the survey of the importance of their response and thanking those who had already returned their questionnaire.

The 1980 Urban River Recreation Survey (See Appendix B) contained questions dealing with activities on and along the White River, energy and recreation, attitudes toward recreational development of the river, and fishing. Some of the items for the questionnaire were suggested by the Indiana Department of Natural Resources. Socioeconomic information was also collected about each respondent. The questionnaire also contained two lists of 48 attributes that described characteristics of recreational river use determined by a literature search to be related to river use. The respondent was asked first to rate an attribute's importance, on a scale from (1) "Don't care" to (5) "Definitely must be there". The respondent then

rated the same attribute on the second list as to satisfaction with the current situation (performance). The ratings were from (1) "Very dissatisfied" to (5) "Very satisfied".

Questionnaires, with appropriate cover letters, (See Appendix C) and a self-addressed, stamped envelope were mailed to two other groups during the summer of 1980. Postcard reminders were also used. Questionnaires were mailed to persons who maintain residence along the river in Indianapolis. The Indiana Department of Natural Resources served as host for a series of public meetings dealing with the recreational development of the White River in Marion, Hamilton, Madison, and Delaware counties. A list of persons attending these meetings was obtained and a copy of the Urban River Recreation Survey was mailed to each person.

In 1981, the long mail survey was revised, based upon experience from the previous summer's research. Questions in the 1981 Urban River Recreation Survey (See Appendix B) dealt wth access to the river, energy and recreation, and personal information. Two attribute lists were again used, this time containing 44 items each. Nine items from Driver and Brown's (1978) item pool of psychological outcomes of recreation participation were incorporated into the attribute list and others that were repetitive or confusing were dropped.

Importance-Performance Analysis

Importance-performance analysis was used to analyze the two attribute lists for each survey. There are six steps in the analysis process. Step 1 calls for identification of potentially important features or attributes. This was accomplished by a search of the

river recreation and urban recreation research literature. Important attributes can also be identified through interviews and exploratory studies or through consultation with professionals closely involved with the field.

The second step is to conduct a survey of consumer (recreationist) opinion. This measures the importance and performance of the attribute under consideration. A five-point Likert scale was used in the Urban River Recreation Survey. For "Importance" the values ranged from "Don't care" (1) to "Absolute must be there" (5). The "Performance" scale ranged from "Very dissatisfied" with a value of 1 to "Very satisfied" with a value of 5.

Steps 3 and 4 involved statistically estimating the success and importance of each feature respectively. In the original marketing application of this approach, mean importance values were plotted against mean performance values. Median values may theoretically be preferable as a measure of central tendency, especially if a true interval scale doesn't exist (Martilla and Carvey 1977). However, if mean and median values are reasonably close in value, either is acceptable (Martilla and James 1977:79). Neslin (1981) found that statistical methods may be more accurate for linking features to perceptions, however. Therefore, the analysis used in this research utilized Pearson correlation coefficient values relating the stated values of performance and importance. The absolute values of the correlation coefficients were then ranked from largest to smallest. The median importance values were also ranked and a composite ranking of the two was constructed by averaging. The values calculated were multiplied by two (2) to facilitate placement on the Action Grid

display. The composite ranking of importance was plotted against the median satisfaction value for each attribute.[1]

The fifth step in the process is construction of the Action Grid. Importance is measured on the vertical axis and performance on the horizontal. The grid is then divided into quadrants to make it easier to read. Because the Grid is developed to show relative, rather than absolute levels of satisfaction and importance, positioning of the cross-hairs is a matter of judgement for each agency. For attributes that are located on or very near the cross-hairs, a frequency count may be desirable to more clearly define the level of satisfaction and importance. Features that are high in importance and performance will be located in the upper right quadrant (Figure 1). Attributes with high importance and low performance are displayed in the upper left quadrant, and so on. Statistical Packages for the Social Sciences (SPSS) was utilized in all of the above calculations. A plotting program was developed for this project to perform the ranking and subsequent plotting of attributes on the Action Grid. The average cost per plot was $.18. Most computer facilities should have the capability to handle these tasks.

The final step in the process is the "action" stage, where decisions are carried out. Actions can follow the forms suggested in Figure 1.

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[1] Both mean and median values for satifaction and importance were examined and were found to be approximately equal. Therefore, median values were chosen because an ordinal scale, rather than a true interval scale was utilized.

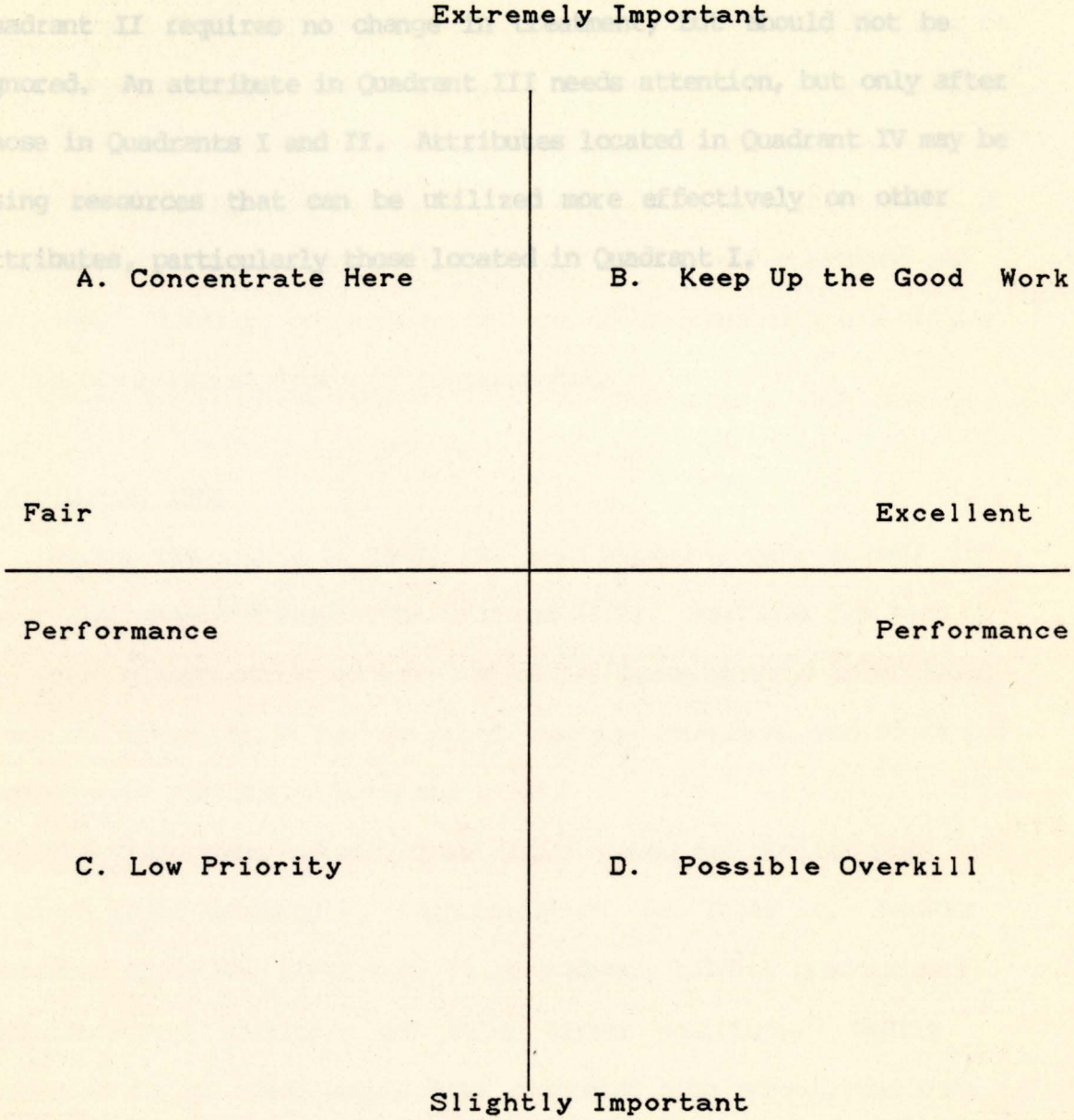

Figure 1. Example Action Grid. From: Martilla,James, (1977).

For example, an attribute that is located within Quadrant I is rated as important and unsatisfactory and thus should be given a high priority and immediate attention, if possible. An attribute in Quadrant II requires no change in treatment, but should not be ignored. An attribute in Quadrant III needs attention, but only after those in Quadrants I and II. Attributes located in Quadrant IV may be using resources that can be utilized more effectively on other attributes, particularly those located in Quadrant I.

CHAPTER 4. RESULTS

Since there were differences in the persons interviewed and items used between 1980 and 1981, the results from each summer will first be examined separately. The return rate for each summer is presented. Next, the socioeconomic/demographic characteristics of persons interviewed during each season will be examined. Then the results of Importance-performance analysis for each summer are presented and discussed. Finally, comparisons between those items that are similar in the two summers' data will be presented.

Field Survey 1980

During the summer of 1980, 292 questionnaires were mailed. Of these, 181 usable surveys were returned (62%). Response for each of the three groups contacted was: 56.6% for those persons interviewed along the river, 81.8% for the public meeting attendees, and 55.4% for persons with residences along the river.

The differences between these three groups are obvious when one examines their demographic characteristics (See Table 1). Persons contacted along the river tend to be younger, holding professional, administrative, clerical, and sales career positions. Nearly three-fourths of these people have completed high school, and over half have attended college. A majority of the respondents were male. This group had the largest percentage of single persons (35.5%). This difference might be explained by the large percentage of persons under 24 years of age in this group.

Those persons who live along the river, on the other hand, tend to be a more mature group, with over half of the respondents 55 years of age or older. As can be expected, there is a large percentage of retirees in this group. The percentage of persons attending and completing college is slightly lower than for the persons interviewed on-site. Again, males comprised the majority of respondents.

The public meeting attendees seem to be intermediate in age, compared to the other two groups. Males made up a large percentage of this group also. There is a slightly higher percentage of professionals and administrative personnel in this group. Incomes tend to reflect this, with the public meeting attendees making more per year on the average than those in the other two groups.

Most striking are the differences in ethnic background. Of those people interviewed along the river, 18.2% were black. This approximates the proportion of black persons (20.3%) found in the county, according to the 1980 census. The public meeting attendees group, however, consisted of only 2.0% blacks and there were none in the group of residents responding.

Table 1. Respondents in White River Survey By Socioeconomic Characteristics.

	1980			1981
	Interviews	Public Meetings (%)	Residents	
AGE				
(5–24)	30.3	3.9	2.9	15.3
(25–34)	38.2	31.4	8.6	44.9
(35–44)	15.8	35.3	14.4	15.3
(45–54)	7.9	11.8	8.6	6.8
(55–64)	5.4	15.7	28.6	11.0
(65+)	2.6	2.0	37.1	6.8
SEX				
Male	67.1	74.5	75.0	64.7
Female	32.9	25.5	25.0	35.3
MARITAL STATUS				
Single	35.5	3.9	8.3	27.1
Separated, Divorced, Widowed	11.8	2.0	13.9	27.1
Married	52.6	94.1	77.8	59.3

Table 1. (continued)

	1980			1981
	Interviews	Public Meetings (%)	Residents	
ETHNIC BACKGROUND				
Black	18.2	2.0	0.0	26.7
White	80.5	98.0	100.0	73.3
Other	1.3	0.0	0.0	0.0
OCCUPATION				
Retired	5.2	0.0	41.7	10.3
Housewife	5.2	12.0	2.8	10.3
Student	6.5	0.0	2.8	6.8
Unemployed	1.3	0.0	0.0	0.9
Professional	28.6	30.0	11.1	26.5
Administrative	14.3	22.0	13.7	9.4
Clerical and Sales	14.3	14.0	16.7	10.3
Craftsmen	11.7	8.0	5.6	10.3
Operatives	2.6	0.0	0.0	10.3
Laborers	1.3	2.0	0.0	0.0
Farm	0.0	2.0	0.0	0.0
Service Workers	9.1	10.0	5.6	5.1

Table 1. (continued)

	1980			1981
	Interviews	Public Meetings	Residents	
	(%)			
EDUCATION				
Some or Completed High School	5.2	2.0	0.0	4.3
Some High School	6.5	0.0	11.1	12.0
Completed High School	22.1	13.7	27.8	17.9
Some College	26.0	29.4	25.0	19.7
Completed College	26.0	29.4	25.0	19.7
Graduate work or Degree	14.3	29.4	8.3	17.9
Some or Completed Trade School	0.0	3.9	8.3	10.3
INCOME				
<$3000	5.6	0.0	0.0	4.7
3000-5999	4.2	2.0	8.3	3.8
6000-7999	5.6	2.0	0.0	3.8
8000-9999	6.9	2.0	8.3	5.7
10,000-14,999	12.5	10.0	16.7	16.0
15,000-19,999	12.5	4.0	16.7	23.6
20,000-29,999	23.6	36.0	19.4	23.6
30,000+	29.2	44.0	30.6	18.9

Interpreting the Action Grid

The Action Grids for each of these three user groups are also distinct. The grids are presented in Figures 2 through 4.[1] Looking at the distribution of attributes on the grids it is obvious that those people who attended the public meetings were, on the whole, dissatisfied with the present river system (Figure 2). People interviewed along the river were comparatively less dissatisfied, especially with those attributes that they perceived to be of less importance (those that fall below the midpoint on the importance scale). The points are also more clustered around the cross-hairs than for the public meeting attendees (Figure 3). Residents, on the other hand, were satisfied with almost all of the attributes evaluated and mildly dissatisfied with only a few of their "important" attributes (Figure 4). Viewed side by side, or in the above sequence, the differences in the attitudes of the three groups are readily apparent, as the clusters of attributes seem to move across the grid.

The public meeting attendees expressed dissatisfaction with almost all of the river system attributes, and real satisfaction with only one, "Presence of trees for shade" (6). This general dissatisfaction might be expected as only people with strong opinions toward the recreational development of the river would be expected

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[1] The numbers beside the stars correspond to the various attributes, some of which will be referred to in parentheses in the text. A complete key can be found in Appendix D.

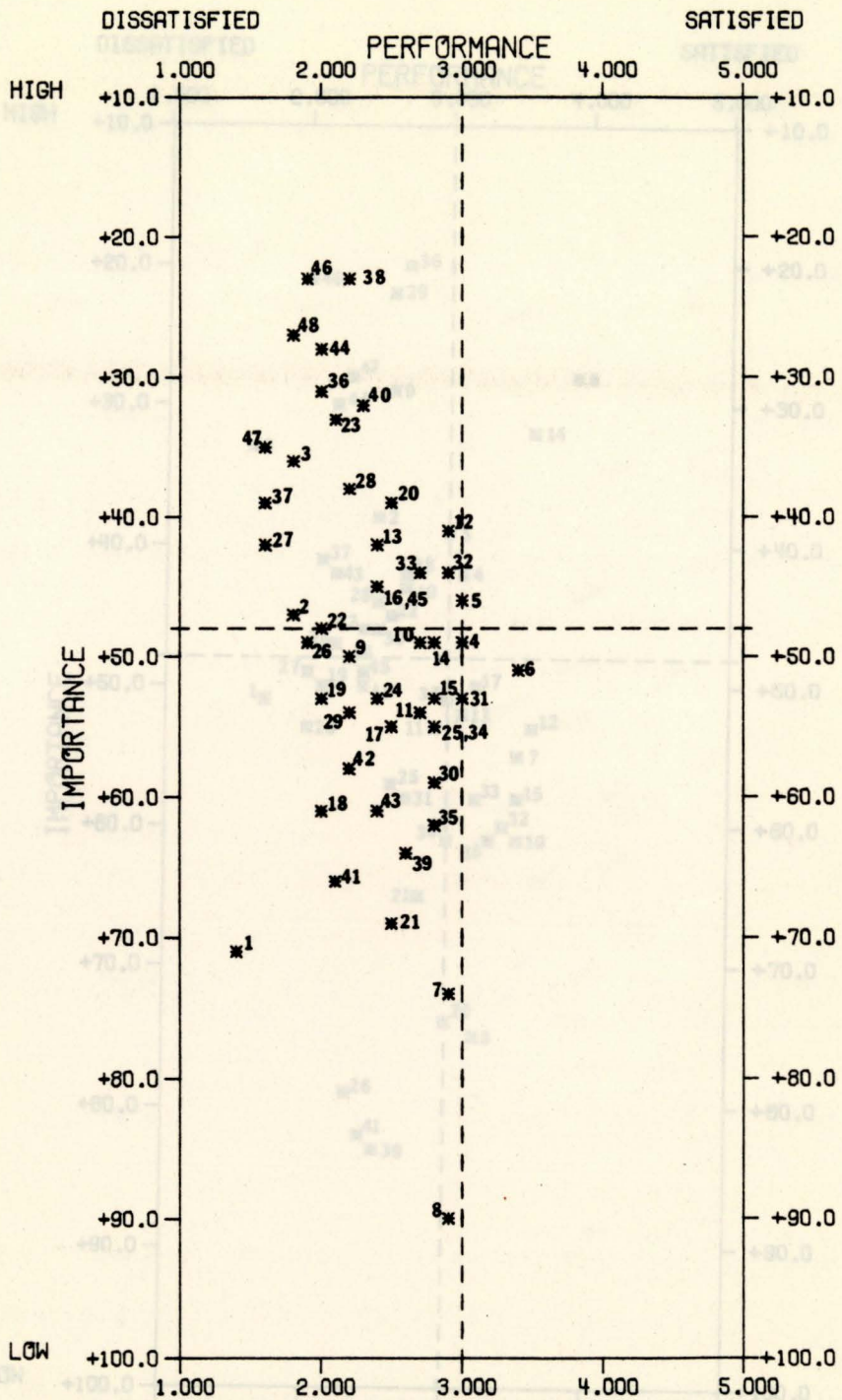

FIGURE 2. ACTION GRID: 1980 PUBLIC MEETINGS

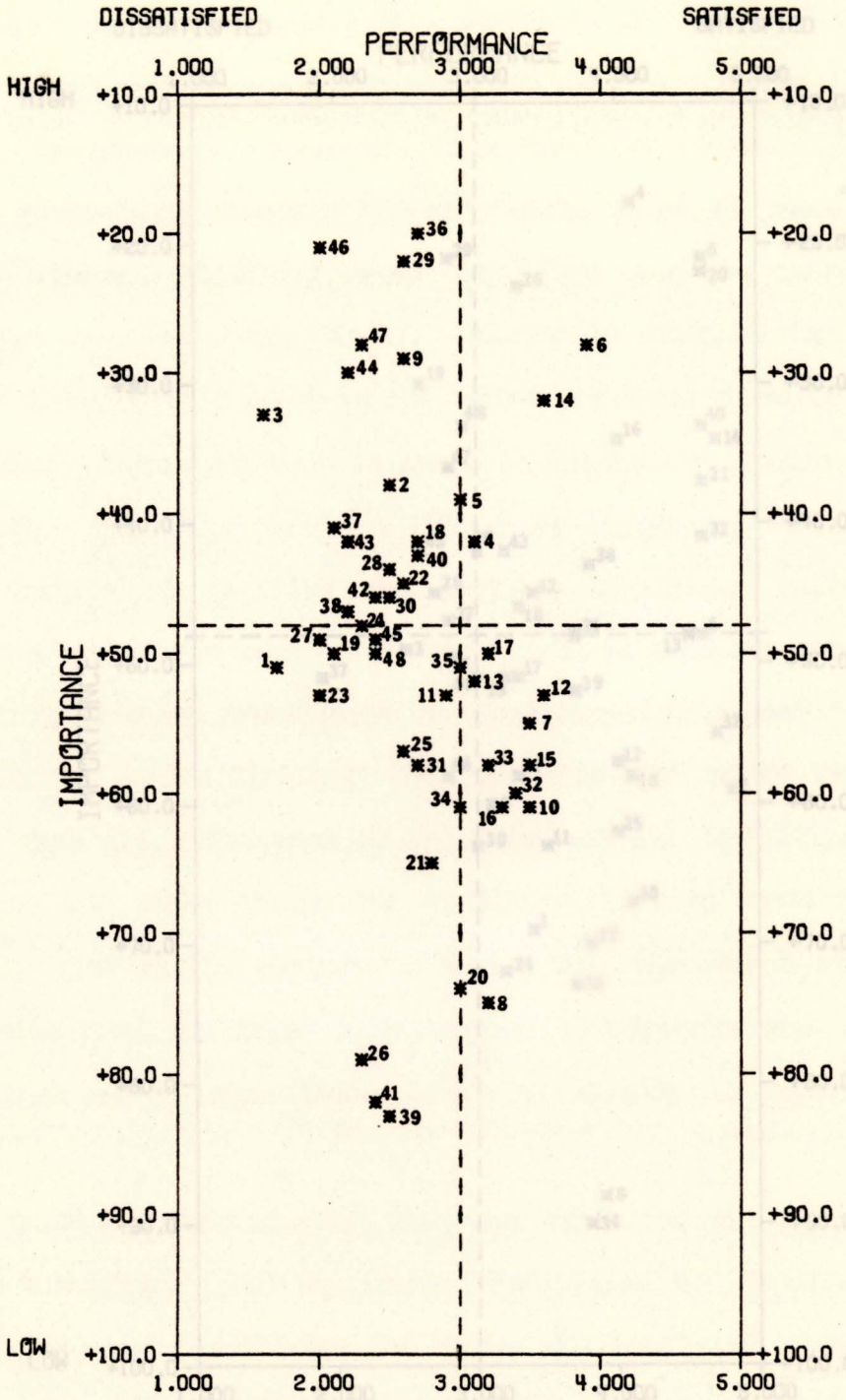

FIGURE 3. ACTION GRID: 1980 INTERVIEWS

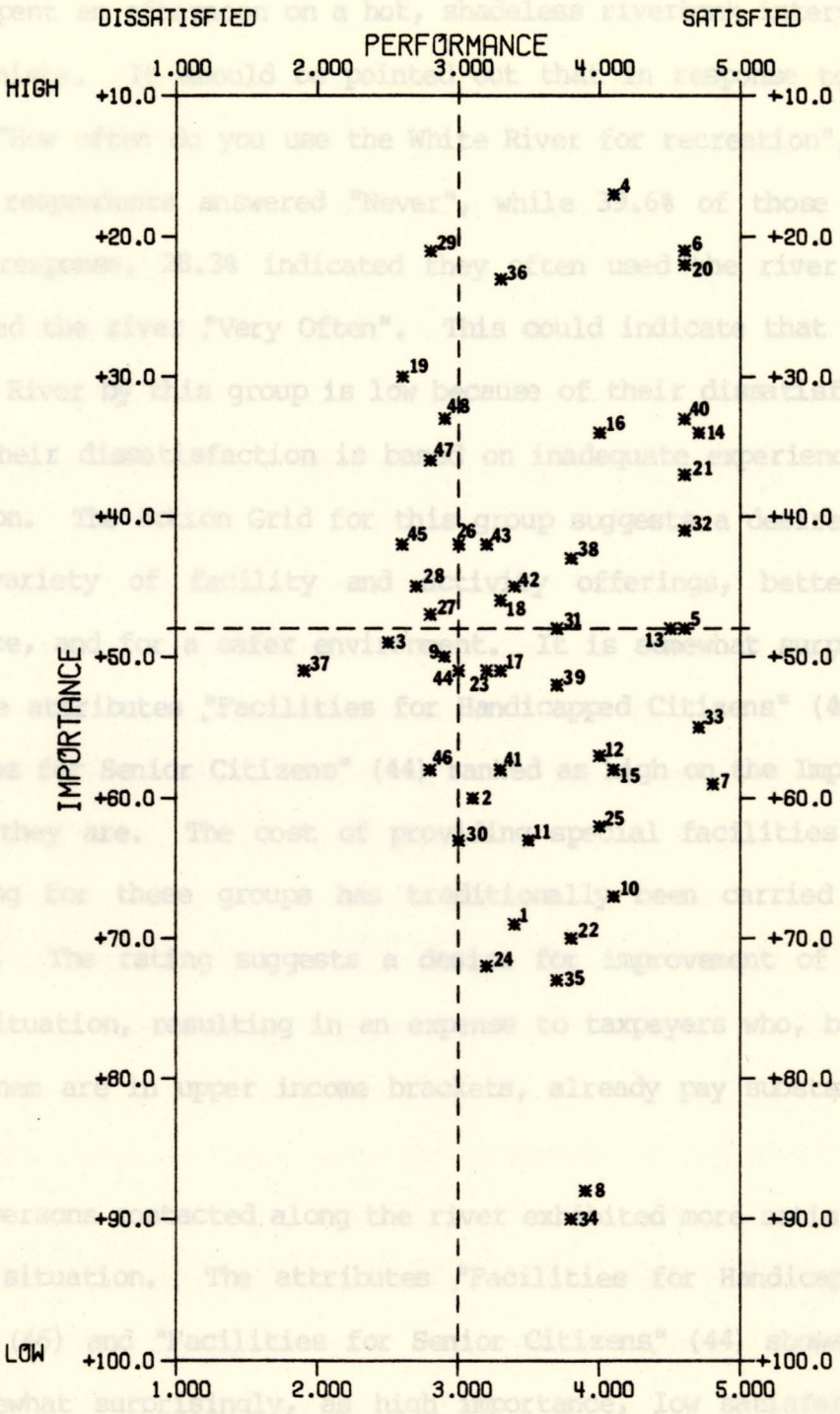

FIGURE 4. ACTION GRID: 1980 RESIDENTS

to attend the public meetings. The fact that they perceived an adequate supply of trees for shade is intriguing, especially to anyone who has spent an afternoon on a hot, shadeless riverbank interviewing recreationists. It should be pointed out that in response to the question "How often do you use the White River for recreation", 28.3% of these respondents answered "Never", while 39.6% of those the "Seldom" response, 28.3% indicated they often used the river and 28.35% used the river "Very Often". This could indicate that use of the White River by this group is low because of their dissatisfaction, or that their dissatisfaction is based on inadequate experience and information. The Action Grid for this group suggests a desire for a greater variety of facility and activity offerings, better maintenance, and for a safer environment. It is somewhat surprising to see the attributes "Facilities for Handicapped Citizens" (46) and "Facilities for Senior Citizens" (44) ranked as high on the Importance scale as they are. The cost of providing special facilities and programming for these groups has traditionally been carried by taxpayers. The rating suggests a desire for improvement of the current situation, resulting in an expense to taxpayers who, because many of them are in upper income brackets, already pay substantial taxes.

The persons contacted along the river exhibited more satisfaction with the situation. The attributes "Facilities for Handicapped Citizens" (46) and "Facilities for Senior Citizens" (44) showed up, again somewhat surprisingly, as high importance, low satisfaction attributes. The attribute "Presence of Trees for Shade" (6) was rated as being important, but satisfactory. This would seem to be a

contradiction, based on discussion with users in the field, many of whom bemoaned the lack of trees and shade, especially at popular fishing spots in the downtown area. However, those people who were not fishing at the time they were interviewed were less dissatisfied and considered trees and shade more important than did fishermen.

The attributes that are ranked as important but satisfactory all seem to suggest that the areas along the river provide a pleasing, quiet, natural environment ("Trees for Shade" (6), "Quiet Areas" (14), and "Natural Areas" (4)). While some of the areas along the White River meet this description, many do not. However, responses indicate that the land along the river is perceived as a "natural" environment in the midst of the city, as was suggested by Kaplan (1977).

All of the attributes related to access are found in Quadrants III and IV, the low importance quadrants: "Close to Home" (7), "Easy Access" (10), "Safe Public Transportation" (35), "Inexpensive Public Transportation" (34), "Easy Walking Access" (32), "Good Public Transportation" (11), and "Other Recreation Areas Nearby" (39). This would seem to indicate that access is not a problem for these people. They apparently have already adapted ways to move about in the river corridor that are satisfactory to them.

As surprising, perhaps, were the placement of the attributes "Fishing Facilities" (33) and "Picnicking Facilities" (19) in Quadrant IV, with low importance and high satisfaction. Many of the people interviewed along the river were involved in fishing and/or picnicking. Of the people interviewed 16% reported they were fishing at the time they were contacted, while 38% were picnicking. Furthermore, 34.8% of those persons interviewed reported they did use

the White River for fishing at some time, many of them (47.8%) very often.

Residents along the river were very satisfied with the status quo. This group recorded some of the highest satisfaction and importance scores. These people appear to be the least altruistic of the three groups. The attributes "Facilities for Senior Citizens" (44) and "Facilities for Handicapped Citizens" (46) are located in Quadrant III, of relatively low importance and mild dissatisfaction. Most of the responses from this group seem motivated by a desire to control or curtail development and improve controls over such problems as litter (27), maintenance (37), crime (28), presence of undesirable people (29), water quality (3) and weeds and algae (4). Persons in this group expressed, via comments on the returned questionnaire, a desire to see the river dredged and accumulated debris removed. As the Action Grid indicates, they are against recreational development that might further impact their property and lifestyle. One might suppose they are against any action which might also increase their taxes. However, they indicate support for more controls and improvements of existing problem areas.

There are only two attributes rated the same by all three groups, "Safe From Crime" (28) and "County vs. Neighborhood Development" (47) were ranked high in importance and low in satisfaction by all three groups. The ranking of "Safe From Crime" by all groups indicates a general concern for safety within the recreational areas. The attribute "County vs. Neighborhood Development" was presented in an attempt to gauge attitudes toward the types of development proposed

along the White River as discussed earlier, and points to a preference for development on a county-wide scale.

Factor analysis with Varimax rotation was utilized in further examining the 48 river corridor attributes. When the list of attributes ranked for satisfaction was evaluated the following factors were identified:

Access and natural areas

Public transportation and trails

Special facilities

Water sports

Type of development

Safety

Water quality

Note that this list includes the same general categories identified by importance-performance analysis on the Action Grid as being consistently important.

Other questions on the Urban River Recreation Survey provided interesting and valuable information. Respondents were asked to indicate activities that they participated in from a list of 16 items. It was found that people participate in a variety of activites on or along the White River. The four most popular activities were walking for pleasure, picnicking, fishing and canoeing/kayaking. Most people, however, spend relatively little time per visit, on the average less than three hours. It is obvious even to the casual observer, and as is supported by the above survey results, that fishing is a very popular pastime along the river, so questions were included to find out how often people fished, why they fished, when, and their opinions

on the quality of fishing. Results indicate that most people fish infrequently and usually they are fishing for sport, occasionally for both food and sport. The most popular fishing times were the morning and evening. Most people felt the fishing along the White River was poor to fair in quality.

Questions were included in the Urban River Recreation Survey to assess the impact of higher fuel costs on these recreationists' leisure patterns. While most of the people reached the river via private auto, people reported they were using their cars less for recreation. Most people reported the distance they travelled for recreation had decreased as a result of higher fuel prices. However, they also reported that their use of local parks had stayed the same or increased only a little.

Field Survey 1981. During the summer of 1981 persons were again interviewed along the White River and mailed the revised Urban River Recreation Survey. Interviews were conducted at the same popular fishing and picnicking spots as in 1980, as well as at several additional sites. Two hundred and sixty-three surveys were mailed out. Of these 21 were returned because of incorrect or insufficient addresses, and 118 usable surveys were returned for a response rate of 48.8%. This compares with the 1980 rate of 56.6%.

Blacks comprised a significantly higher percentage of the 1981 sample (26.7%) than in 1980. This increase may be partially due to better recording techniques developed from the previous year's experience. Over half of the sample population were 34 years or younger and reported family incomes in excess of $15,000 per year.

Approximately one-fourth of these people were employed as professionals, and were fairly evenly distributed among the other occupations. Over half have attended a college or university. (Table 1). Again, as in 1980, a large percentage of the sample were single. This would seem to be because of the higher perentage of younger persons in these samples.

The Action Grid for summer 1981 is presented in Figure 5. Attributes that are located in the northwest quadrant are:

Free From Undesirables (34)

Facilities for Handicapped Citizens (37)

Crime (31)

Clean River Water (3)

No Weeds/Algae (17)

Variety of Outdoor Facilities (2)

Information and Signs (36)

Places to Swim (1)

Horseback Riding (32)

Bike Trails (19).

Areas perceived as needing attention first then, are those concerned with safety, water quality and special facilities and opportunities. Interestingly enough, "Facilities for Handicapped Citizens" appeared in this quadrant, but "Facilities for Senior Citizens" (33) was ranked as much less important by respondents.

Examining Quadrant II reveals that most of the respondents find the river and its banks to be pleasing natural areas, places to escape from pressure and routine.

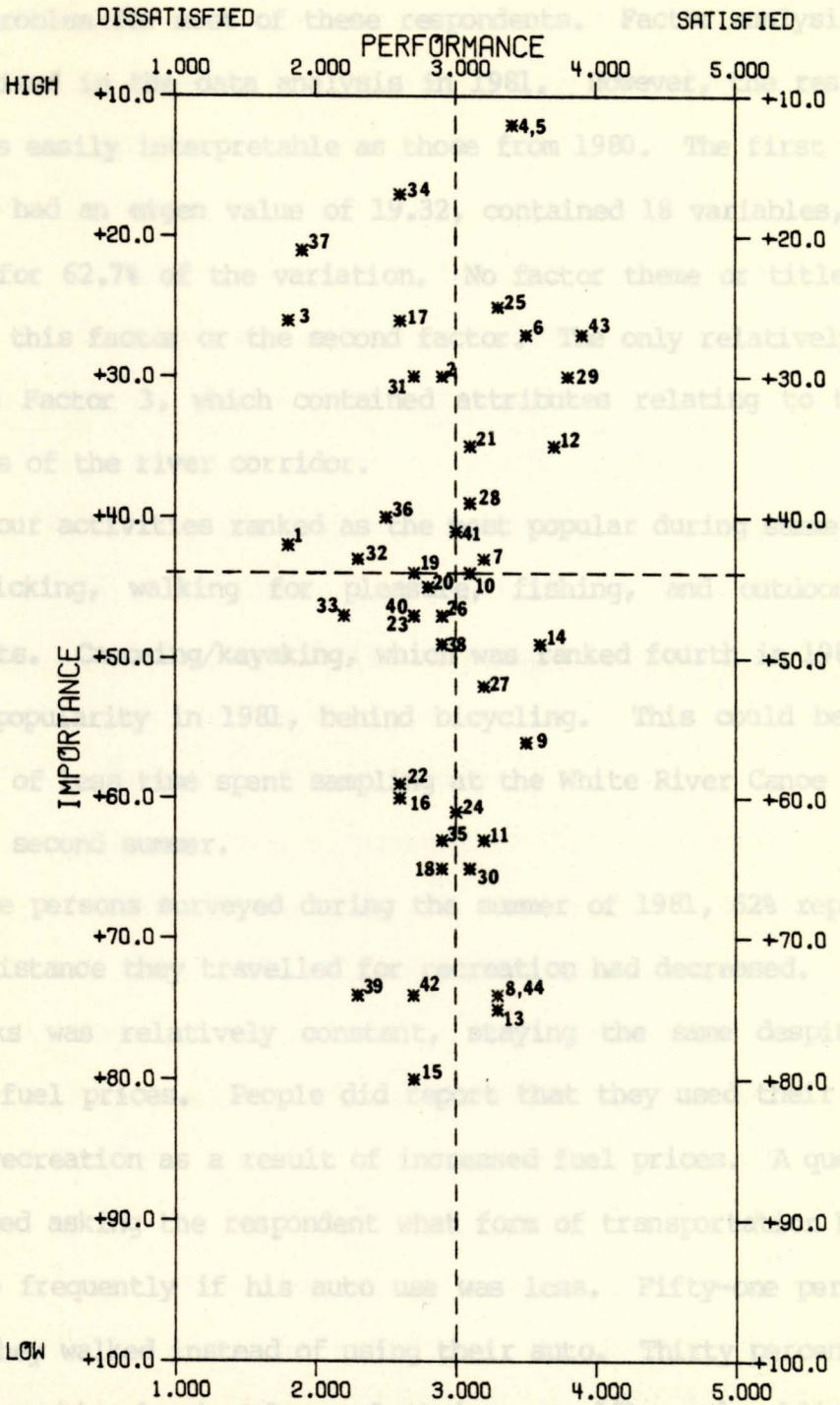

FIGURE 5. ACTION GRID: 1981 INTERVIEWS

All of the attributes dealing with access are located in the "satisfied" quadrants, or on the cross-hairs, again suggesting access is not a problem for most of these respondents. Factor analysis was again utilized in the data analysis in 1981. However, the results were not as easily interpretable as those from 1980. The first factor identified had an eigen value of 19.32, contained 18 variables, and accounted for 62.7% of the variation. No factor theme or title was obvious in this factor or the second factor. The only relatively pure factor was Factor 3, which contained attributes relating to the naturalness of the river corridor.

The four activities ranked as the most popular during summer 1981 were picnicking, walking for pleasure, fishing, and outdoor games/sports. Canoeing/kayaking, which was ranked fourth in 1980 was sixth in popularity in 1981, behind bicycling. This could be a reflection of less time spent sampling at the White River Canoe Rental during the second summer.

Of the persons surveyed during the summer of 1981, 62% reported that the distance they travelled for recreation had decreased. Use of local parks was relatively constant, staying the same despite increased fuel prices. People did report that they used their auto less for recreation as a result of increased fuel prices. A question was included asking the respondent what form of transportation he was using more frequently if his auto use was less. Fifty-one percent reported they walked instead of using their auto. Thirty percent said they rode a bicycle in place of their car, 10% used public transportation, 1.7% rode a motorcycle and 10.8% checked the "other" category.

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Black-White Differences

The 1981 results were analyzed to determine if there were significant differences in attitudes toward the White River between black and white persons in the sample. Action Grids for both groups are presented in Figure 6 and 7. There were some similarities, but also some obvious differences. In general, blacks were more dissatisfied than whites with the river system.

Both blacks and whites placed the following attributes in Quadrant I, the high importance-low performance quadrant: "Clean River Water" (3), "Facilities for Handicapped Citizens" (37), "Crime" (31), "Maintenance" (23), "Law Enforcement" (40), "Horseback Riding" (32). Both groups expressed a concern for safety and for maintenance of the river and its banks. Whites also included "Free From Undesirables" (34), and "No Weeds/Algae" (17) in Quadrant I.

Both groups agreed on the placement of "Trees and Shade" (5) and "Natural Areas" (4) in Quadrant II, and "Indoor Sports Events" (22), "Odor of Water" (16), "Cultural and Historical Landmarks" (39), "Exercise and Physical Fitness" (38), and "Develop Skills and Abilities" (42) in Quadrant III. In Quadrant IV, "Meet People" (8) and "Observe People" (44) were the only two attributes of mutual agreement.

It is interesting to look at the types of differences that are present in attitudes of blacks and whites. One obvious example is the treatment of attributes related to access. Black persons placed all of the access attributes in Quadrants I or III, indicating dissatisfaction. Whites, on the other hand rated all of the access

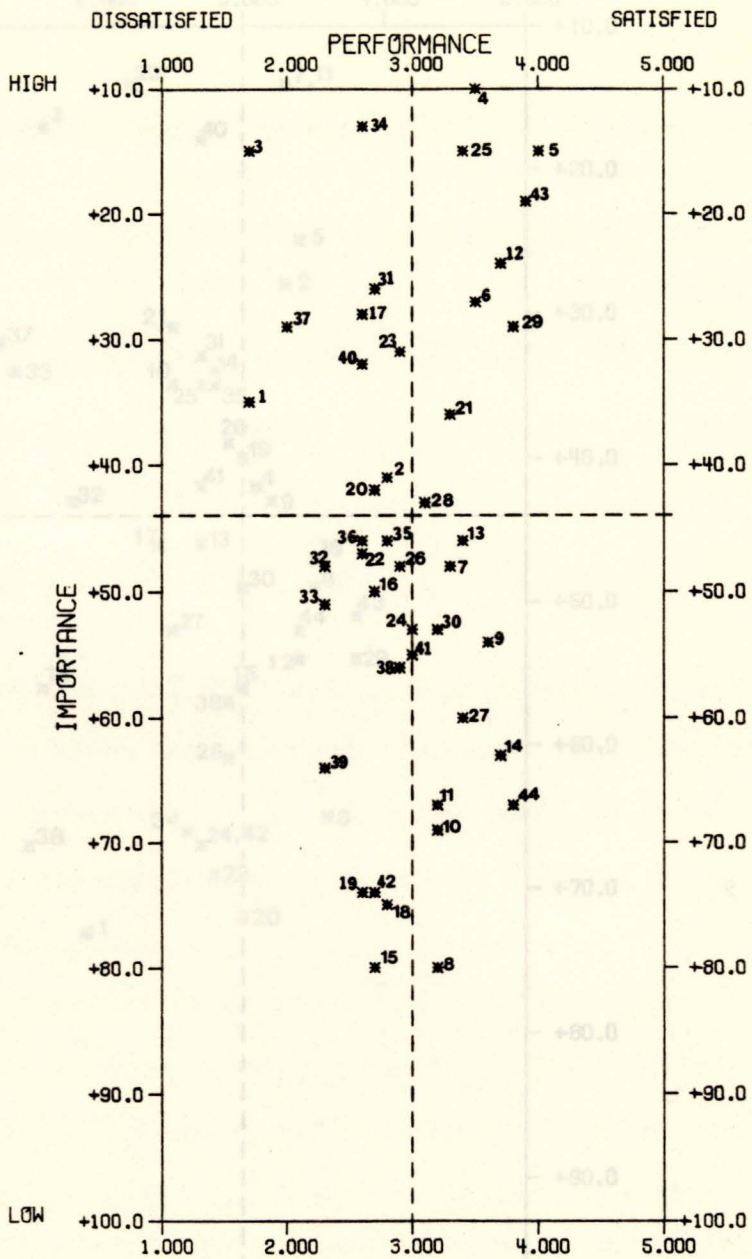

FIGURE 6. ACTION GRID, 1981 WHITES

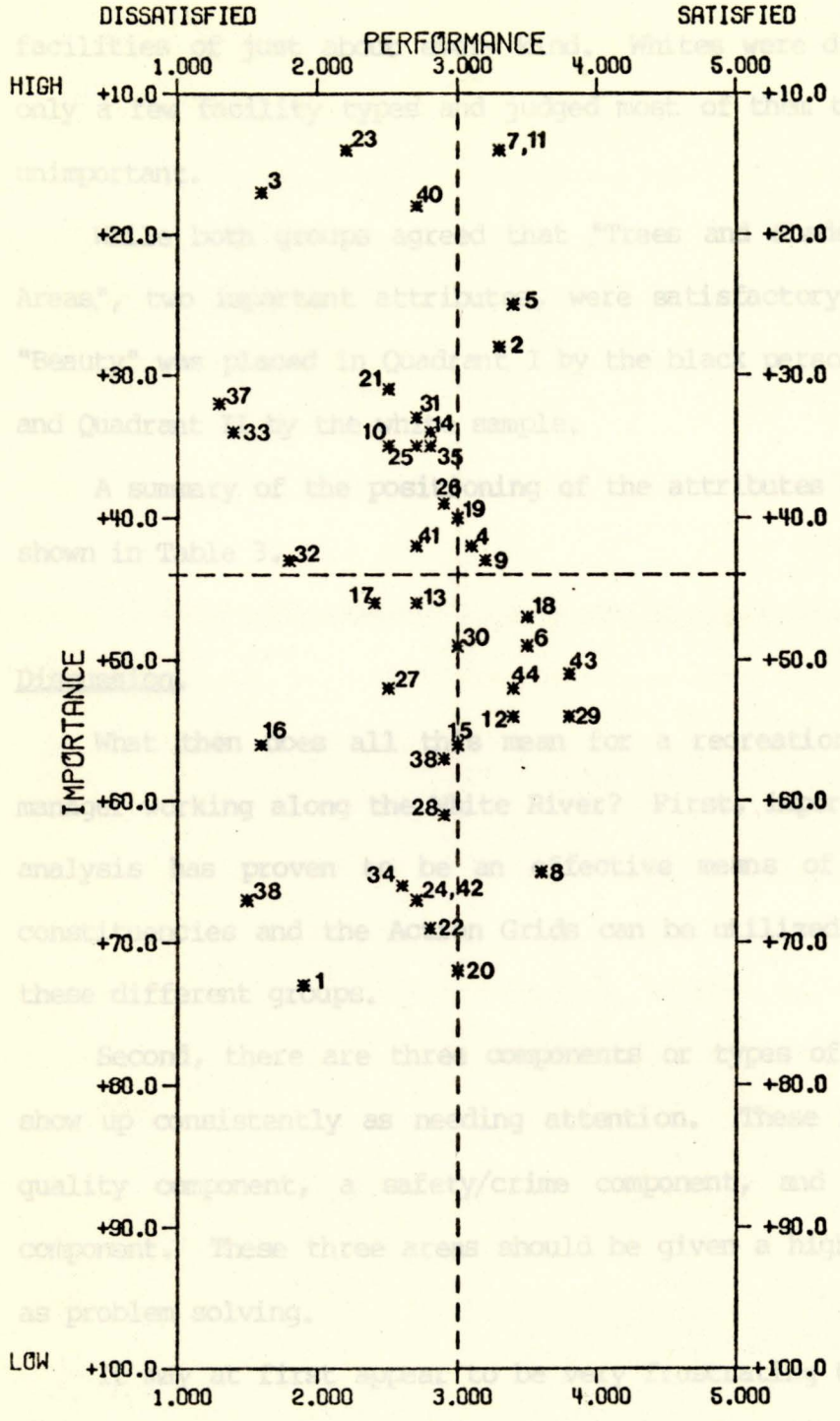

FIGURE 7. ACTION GRID, 1981 BLACKS

attributes as unimportant and satisfactory, placing them in Quadrant IV. The two groups also disagreed on placement of many of the different facilities. Overall, blacks felt there was a need for facilities of just about every kind. Whites were dissatisfied with only a few facility types and judged most of them to be relatively unimportant.

While both groups agreed that "Trees and Shade" and "Natural Areas", two important attributes, were satisfactory, the attribute "Beauty" was placed in Quadrant I by the black persons in the sample, and Quadrant II by the white sample.

A summary of the positioning of the attributes by both groups is shown in Table 3.

Discussion.

What then does all this mean for a recreational planner or manager working along the White River? First, importance-performance analysis has proven to be an effective means of identifying constituencies and the Action Grids can be utilized in dealing with these different groups.

Second, there are three components or types of attributes that show up consistently as needing attention. These include a water quality component, a safety/crime component, and a facilities component. These three areas should be given a high priority as far as problem solving.

It may at first appear to be very frustrating that two of these components, water quality and safety/crime, are attributes that no one planner or manager can exert control over.

For example, water quality was consistently identified as being important and unsatisfactory along the river. Obviously some improvement is desired. Yet seldom is one person, one agency, or even one city responsible for the water quality of an entire river. The problem appears insurmountable. In dealing with such a problem, however, it is important to be aware of peoples' perceptions. It may well be that the water quality of the river is much higher than it is perceived to be. People claim the river water is unsafe. One man even remarked "I don't allow the family dog to swim in it." Yet people do swim, water ski and canoe on the White River. Each year, during the annual raft race, thousands of people frolic in the river throughout the course of the day. For most of the length of the river, the water apparently is safe for at least partial body contact. Information and education can help in changing some popular misconceptions. For example, the Indiana Department of Natural Resources, the White River Park Commission and the city of Indianapolis have hosted well-publicized cleanup campaigns along the river. Such efforts can help gain the public's attention and raise its perception of the river's quality. These cleanup campaigns can thus serve as valuable public relations tools, as well as tools for actually improving site and water quality. Continued efforts in water quality control are, of course, also necessary.

A safety/crime component was also identified as one where improvement is needed. Some concrete actions can be taken to help solve this problem. Increased lighting in an area may make an area safer at night. Increasing the frequency of police patrols past or through an area is another means of reducing crime. Peoples'

perceptions must also be recognized where safety is concerned. An area may be very safe, but if it is perceived as an area that could be dangerous, it will be avoided like a dark alley. Information and education again can lead to increased use, which in the end, actually can make an area safer for use.

A desire for more facilities has been identified. This is a desire not only for more facilities, but for a wider variety of facilities, including special facilities for handicapped and senior citizens. Linear facilities (bike trails, jogging trails, etc.) are especially needed.

This demand for more facilities and development is not without implications. One of the present attractions along the river is the natural setting and its various components. Development of linear facilities would be likely to bring more people to the river corridor, thus increasing use. Impacts of increased corridor use is well documented in wildland research (Craig 1977; Ditton et al. 1977; Merriam and Smith 1974). Similar problems of river-bank erosion, littering, damage to vegetation, are likely to occur in the urban forest setting also. Thus, careful planning of the forest is important to incorporate recreational development with aesthetic and ecological values. A management plan should be drafted.

This management plan must consider and solve problems of overlapping and adjacent jurisdictions of agencies involved in managing the river corridor, with questions of preservation vs. utilization, and with other multiple use management considerations.

The majority of the respondents expressed a preference for development on a county-wide scale. However, different segments of

the population disagree on the means of accomplishing this. People interviewed along the river and those who attended public meetings indicated a desire for linear development of the river corridor. To do this easements along the river would need to be negotiated. This is unlikely to be popular with people who own land along the river. Their first desire is to protect their property and their lifestyle. At the present time, there are problems with trespassing, litter and vandalism by boaters and canoeists and a loss of privacy. If landowners advocate development at all, it is in the downtown area or far upstream from their property. Development at a series of nodes is one means of controlling access and concentrating activity. This is what the Indiana Department of Natural Resources has suggested in their plan for the White River Resource System. Another common suggestion from landowners is to improve existing parks and recreation areas, rather than pouring more money into new facilities that will probably suffer the same fate of falling into disuse and disrepair.

Also to be kept in mind is the apparent desire to keep taxes down, as expressed by landowners, persons attending the public meetings, and some of the persons interviewed along the river. Further recreational development is believed by some to be especially non-beneficial to inner city residents because, as expressed by one man interviewed along the river downtown, "...they are the backbone of the tax structure and it is another tax burden on them." This point of view was more prevalent during summer 1981 (the second summer), as several of the attributes related to facility development were ranked as less important than the previous summer, in particular "Indoor Sports Facilities", "Hiking Trails", "Jogging Trails", and "Facilities

for Senior Citizens". Some of this may be due to a better knowledge of the proposed downtown development of the White River Park and the domed stadium the city is planning. (The two are unrelated, though they are perceived by many to be products of the same group.) More of the persons interviewed during 1981 seemed aware of the developments planned and felt this development was not what was needed. However, most didn't want to spend any more money to develop the desired facilities, feeling enough of their tax money was already going for recreation that they did not want.

Table 2. Comparisons Between Action Grids (1980-1981).

1980	1981
QUADRANT I	
Law Enforcement	
Facilities for Handicapped Citizens	Facilities for Handicapped Citizens
Information and Signs	Information and Signs
Facilities for Senior Citizens	
County vs. Neighborhood Development	
Water Quality	Water Quality
Safe From Crime	Safe From Crime
Free From Undesirables	Free From Undesirables
No Weeds/Algae	No Weeds/Algae
Variety of Facilities	Variety of Facilities
Maintenance	
Cultural Activities	
Hiking Trails	
Water Sports Facilities	
Jogging Trails	
Range of Activities	
Indoor Sports Facilities	
	Places to Swim
	Horseback Riding
	Bike Trails
	Learn About Nature

Table 2 (continued).

1980	1981
	Safe Public Transportation
1980	1981
QUADRANT II	
Trees and Shade	Trees and Shade
Natural Areas	Natural Areas
Wildlife and Birds	Wildlife and Birds
	Beauty
	Escape From Pressure
	Escape From Routine
	Picnicking Facilities
	Be With Friends
	Parking Along River
	Family Recreation Places
Quiet Areas	
QUADRANT III	
Picnicking Facilities	
Places to Swim	
Bike Trails	
Historical Landmarks	Cultural/Historical Landmarks
County vs. Downtown Development	
Good Public Transportation	

Table 2 (continued).

QUADRANT III (continued)

1980	1981
Concession Stands	
Zoo	
Areas to Waterski	Waterskiing
Learn About Nature	Learn About Nature
Other Recreational Areas Nearby	
Range of Places	
	Facilities for Senior Citizens
	Law Enforcement
	Hiking and Walking Trails
	Maintenance
	Exercise and Physical Fitness
	Indoor Sports Events
	Odor of Water
	Privacy
	Try Skills and Abilities
	Develop Skills and Abilities
	Jogging Trails

Table 2 (continued).

1980	1981
QUADRANT IV	
Places to Walk	
Fishing Facilities	Fishing Spots
Recreate with Friends	
Open Areas	Open Areas
Close to Home	
Easy Access	Easy Access
Safe Public Transportation	
Near to Work/Shopping	
Cheap Public Transportation	
Picnicking Facilities	
Easy Walking Access	Easy Walking Access
Areas for Boating	Boating Facilities
	Convenient Public Transportation
	Observe People
	Meet People
	Canoeing/Kayaking

Table 3. Comparisons Between Action Grids of Blacks and Whites (1981).

Blacks	Whites
QUADRANT I	
Clean River Water	Clean River Water
	Places to Swim
Facilities for Handicapped Citizens	Facilities for Handicapped Citizens
Horseback Riding	Horseback Riding
	Free From Undesirables
Crime	Crime
	No Weeds/Algae
Maintenance	Maintenance
Law Enforcement	Law Enforcement
	Variety of Outdoor Facilities
	Learn About Nature
Facilities for Senior Citizens	
Picnicking Facilities	
Boating Facilities	
Beauty	
Easy Access	
Try Skills and Abilities	
Hiking/Walking Trails	
Safe Public Transportation	

Table 3 (continued).

Blacks	Whites
QUADRANT II	
Family Recreation	
Fishing Spots	
Trees and Shade	Trees and Shade
Variety of Facilities	
Natural Areas	Natural Areas
Open Areas	
	Beauty
	Escape from Pressure
	Be With Friends
	Wildlife and Birds
	Escape From Routine
	Picnicking Facilities
	Parking Along River

Table 3 (continued).

Blacks	Whites
QUADRANT III	
	Information and Signs
	Try Skills and Abilities
Indoor Sports Events	Indoor Sports Events
	Hiking/Walking Trails
Odor of Water	Odor of Water
	Facilities for Senior Citizens
Cultural and Historical Landmarks	Cultural and Historical Landmarks
Exercise and Physical Fitness	Exercise and Physical Fitness
Develop Skills and Abilities	Develop Skills and Abilities
	Waterskiing
	Bike Trails
Jogging Trails	Jogging Trails
No Weeds/Algae	
Canoeing/Kayaking	
Walking Access	
Convenience Public Transportation	
Parking Along the River	
Free From Undesirables	

Table 3 (continued).

QUADRANT III (continued)

Blacks	Whites
Places to Swim	
Learn about Nature	
Information and Signs	
Privacy	Privacy

QUADRANT IV

Waterskiing	
Wildlife and Birds	
Be with Friends	
Meet People	Meet People
Observe People	Observe People
Escape From Pressure	
Escape From Routine	
	Canoeing/Kayaking
	Family Recreation Places
	Safe Public Transportation
	Convenient Public Transportation
	Open Areas
	Walking Access
	Easy Access
	Boating Facilities
	Fishing Spots

CHAPTER 5. SUMMARY AND IMPLICATIONS

As recreational use of urban forest/river corridor increases, planning and management of these resources must be improved if they are to meet needs of persons who can most benefit from the rivers and their adjacent lands. In this study, importance-performance analysis was utilized to identify the attributes of the White River corridor that were of importance to recreationists and that were perceived as needing attention.

Water quality, and its various components, showed up consistently as being important and unsatisfactory. Attributes pertaining to safety and fear of crime were also rated as important and unsatisfactory by all groups. People also expressed the need for more facilities and a wider variety of facilities. Special facilities for handicapped and senior citizens were among those rated as being deficient. However, there was less desire for more facility development by persons interviewed the second summer. Persons living along the river also are against any further development.

Access, contrary to what was hypothesized at the beginning of this study, is not a major concern for most of the people surveyed. The naturalness of the river and its banks was consistently rated as being important, but received a satisfactory rating.

It was also found that different groups perceived the river corridor differently and that there were some differences in the attitudes of blacks and whites toward the river.

Implications

Importance-performance analysis has been demonstrated as an effective tool for urban river recreation planners and managers. The results of this study can be used to improve recreational opportunities along the White River in Indianapolis. But importance-performance analysis has value in other areas in the recreation field where satisfaction is a concern. For example, LaPage (1981) studied campers' satisfaction with a campground by asking campers to "grade" each of several attributes of that campground, via a "report card". Adding a measure of importance to this "grade" would be of great help to campground managers in understanding better the shortcomings and the strong points of their operations, and would enable them to set priorities in bringing about change.

Importance-performance analysis could also be used to aid in problem identification, such as with elements of the National River Recreation Survey (USDA 1981). When a data base as large as is expected is utilized, identifying areas of real importance is of great significance.

Indeed, many areas of recreation can benefit by including a measure of attribute importance along with the traditional satisfaction measures. However, recreation alone is not the sole possible application of importance-performance analysis. Almost any field where use depends upon user satisfaction could effectively benefit from importance-performance analysis. For example, public transit authorities that are seeking to increase ridership may find importance-performance analysis helpful. Creswell (1979:10) feels that to plan transit effectively, "Considering only total costs,

benefits or general effectiveness is not enough. We need to take account of the preferences and the distribution effects between different groups..." Importance-performance analysis would seem to be a viable means of meeting the deficiency Creswell describes.

Recommendations

This survey looked at 48 and 44 attributes during two summers of study. This large number of attributes was culled from a vast literature search of river recreation and urban recreation literature in an effort to present as many variables as possible that might be of importance to the recreationist, and in this way reduce bias. As it was rather cumbersome to process this many variables, it may be desirable to handle fewer variables. For public relations purposes, using few attributes may also be desired to make interpretation of the Action Grid simpler. However, care should be taken in order that quality and detail not be sacrificed by using too few variables. It is also important to be judicious in selecting the items or attributes to be analyzed. Care should be taken to avoid capricious selection of only obviously important attributes, as this could introduce substantial bias. A pilot survey may be utilized to identify potentially important attributes, if desired. These attributes may vary from city to city, and river to river.

Opportunities for more research utilizing and refining importance-performance analysis abound. The concept of determinance, how an attribute is related to selection of an activity/facility, is an intriguing one that to date, is relatively unexplored. It is

assumed that important attributes are decision-variables, but a means of examining this has not yet been refined in recreation research.

Another concern of this research that needs to be explored is the attitude of the non-respondent and non-user. This study and other river recreation studies can tell us only about the universe of river users and those contacted. Drawing conclusions about all possible river users from such a study is not statistically valid. Many of the attributes determined to be important to users may not be the same ones that non-users feel are important. In this instance, better planning will in all probability not meet the needs of these non-users and so not draw them in. Also to be considered are those persons who failed to respond to the survey. As mentioned earlier, some of the persons interviewed along the river could not read or write. There may be many functionally illiterate persons whose opinions are never counted via surveys such as these. Some means of including these, and other non-respondents, needs to be found.

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APPENDICES

WHITE RIVER STUDY

1. How would you rate your visit to the river today?

   Poor Fair Good Excellent

2. What activities did you do today?

   ____Sailing
   ____Swimming
   ____Waterskiing
   ____Motor boating
   ____Driving for pleasure
   ____Canoeing/Kayaking
   ____Hiking
   ____Picnicking
   ____Fishing
   ____Off-road vehicles (ORV's, motorcycles)
   ____Horseback riding
   ____Jogging
   ____Walking for pleasure
   ____Wildlife observation
   ____Outdoor games/sports
   ____Other

3. How did you get to the river?

   ____Personal automobile
   ____With a friend in his/her auto
   ____Walked
   ____Bicycled
   ____Public transportation
   ____Jogged
   ____Motorcycle
   ____Other

4. If you drove, did you:

   ____Park vehicle on road or parking area and walk to river's edge?
   ____Drive and park vehicle on paved surface at river's edge?
   ____Drive and park vehicle on unpaved surface at river's edge?

5. Who did you come with?

   ____Alone
   ____With friends
   ____With family
   ____With a club or other organization

6. How long (how much time) did (will) you spend here today?

   ____hrs.

7. How often do you use the area along the river for recreation?

   ____Never ____Seldom ____Often ____Very often

8. How important is the presence of trees and shade to you when you select an area to use along the river?

   ____Not at all important
   ____Somewhat important
   ____Very important

Name_____

Address_____

City_____ State_____

Zip Code_____

THANK YOU FOR TAKING TIME TO FILL OUT THIS CARD

PURDUE UNIVERSITY

1980

URBAN RIVER RECREATION SURVEY

Urban River Recreation Project

Purdue University

Dept. of Forestry & Natural Resources

West Lafayette, IN 47907

URBAN RIVER RECREATION SURVEY

This is a voluntary survey. While you are not required to answer, please complete this questionnaire as soon as you can. Your answers are very important to the success of this study. Thank you.

1. How often do you use the White River for recreation? (Please Circle Number)

   1 NEVER
   2 SELDOM
   3 OFTEN
   4 VERY OFTEN

2. Do you think the White River is an important recreation resource in this area? (Please Circle Number)

   1 NOT AT ALL IMPORTANT
   2 SOMEWHAT IMPORTANT
   3 VERY IMPORTANT

3. Is it important for you to be able to drive your car to the river's edge? (Please Circle Number)

   1 NOT AT ALL IMPORTANT
   2 SOMEWHAT IMPORTANT
   3 VERY IMPORTANT

4. If you could not drive to the river's edge, would you still use the river? (Circle Number)

   1 YES
   2 NO

5. How far would you be willing to walk to reach the river's edge? (Circle Number)

   1 SHOULD NOT HAVE TO WALK AT ALL
   2 UP TO 300 FEET
   3 ABOUT 1/8 MILE
   4 ABOUT 1/4 MILE
   5 MORE THAN 1/4 MILE

6. What kinds of activities do you participate on or around the river? (Circle Number)

1	SAILING	9	HIKING
2	MOTOR BOATING	10	PICNICKING
3	CANOEING/KAYAKING	11	FISHING
4	WATERSKIING	12	OFF-ROAD VEHICLES
5	SWIMMING	13	HORSEBACK RIDING
6	BICYCLING	14	JOGGING
7	DRIVING FOR PLEASURE	15	WALKING FOR PLEASURE
8	OUTDOOR GAMES/SPORTS	17	OTHER _____

Your Ideal River Recreation Facility and Surroundings

Please think about what any good park in a river setting must have in it, or very close by it, for you to use and enjoy the park.

How much do you need the following to be present in a park in a river setting for you to use and enjoy the park? Also, consider how important some of the issues are in establishing such a park. Circle any one of the 5 numbers for each thing. The lower the number, the less important it is to you.

		Don't care				Definitely must be there
1	Places to go swimming	1	2	3	4	5
2	Variety of facilities for outdoor sports/games	1	2	3	4	5
3	Clean river water for recreation	1	2	3	4	5
4	Undeveloped, natural areas along the river	1	2	3	4	5
5	Presence of wildlife/birds	1	2	3	4	5
6	Presence of trees for shade along the river	1	2	3	4	5
7	An area that is close to home	1	2	3	4	5
8	Recreation area is near to work/ shopping area	1	2	3	4	5
9	River water that is free of weeds and algae	1	2	3	4	5
10	Easy to reach the recreation site	1	2	3	4	5
11	Good public transportation to river and area	1	2	3	4	5
12	Chance to recreate with friends	1	2	3	4	5
13	Facilities for boats	1	2	3	4	5
14	Quiet, peaceful areas for relaxation	1	2	3	4	5
15	Open areas	1	2	3	4	5
16	Chance to participate in family recreation	1	2	3	4	5
17	Places for strolling and walking	1	2	3	4	5
18	Hiking trails	1	2	3	4	5

		Don't care				Definitely must be there
19	Picnicking facilities	1	2	3	4	5
20	Areas for boating on river	1	2	3	4	5
21	Areas for water skiing on river	1	2	3	4	5
22	Jogging trails along the river	1	2	3	4	5
23	Bike trails along the river	1	2	3	4	5
24	Fenced play area for children	1	2	3	4	5
25	Concession stands close by	1	2	3	4	5
26	Opportunities for learning about nature	1	2	3	4	5
27	Absence of litter at the recreation area	1	2	3	4	5
28	Areas that are safe from crime	1	2	3	4	5
29	Areas free from undesirable people	1	2	3	4	5
30	Facilities for indoor sports events	1	2	3	4	5
31	Presence of a zoo	1	2	3	4	5
32	Easy access to river by walking	1	2	3	4	5
33	Facilities for fishing	1	2	3	4	5
34	Cheap public transportation to the river and area	1	2	3	4	5
35	Safe public transportation to the river and area	1	2	3	4	5
36	Adequate law enforcement near river	1	2	3	4	5
37	Adequate maintenance of the river and surrounding area (repairing damage, general upkeep, etc.)	1	2	3	4	5
38	Good information and signs telling how to get to river	1	2	3	4	5
39	Presence of other recreational areas nearby	1	2	3	4	5

		Don't care				Definitely must be there
40	Facilities for water sports (rafting, tubing, etc.)	1	2	3	4	5
41	Range of different kinds of places to go	1	2	3	4	5
42	Range of different kinds of things to do	1	2	3	4	5
43	Cultural activities (art, music, etc.)	1	2	3	4	5
44	Facilities for older citizens	1	2	3	4	5
45	Historical landmarks and exhibits	1	2	3	4	5
46	Facilities for handicapped citizens	1	2	3	4	5
47	Development of White River throughout county as opposed to certain neighborhoods	1	2	3	4	5
48	Development of White River throughout county as opposed to the downtown area	1	2	3	4	5

Your Views on Present Areas along the River

How satisfied are you at present with each of the following things along the White River? Please circle any one of the 5 numbers to describe its present condition. The higher numbers mean that you are more satisfied.

		Very dissatisfied				Very satisfied
1	Places to go swimming	1	2	3	4	5
2	Variety of facilities for outdoor sports/games	1	2	3	4	5
3	Clean river water for recreation	1	2	3	4	5
4	Undeveloped, natural areas along the river	1	2	3	4	5
5	Presence of wildlife/birds	1	2	3	4	5
6	Presence of trees for shade along the river	1	2	3	4	5

		Very dissatisfied				Very satisfied
7	An area that is close to home	1	2	3	4	5
8	Recreation area is near to work/ shopping areas	1	2	3	4	5
9	River water that is free of weeds and algae	1	2	3	4	5
10	Easy to reach the recreation site	1	2	3	4	5
11	Good public transportation to river and area	1	2	3	4	5
12	Chance to recreate with friends	1	2	3	4	5
13	Facilities for boats	1	2	3	4	5
14	Quiet, peaceful areas for relaxation	1	2	3	4	5
15	Open areas	1	2	3	4	5
16	Chance to participate in family recreation	1	2	3	4	5
17	Places for strolling and walking	1	2	3	4	5
18	Picnicking facilities	1	2	3	4	5
19	Hiking trails	1	2	3	4	5
20	Areas for boating on river	1	2	3	4	5
21	Areas for water skiing on river	1	2	3	4	5
22	Jogging trails along the river	1	2	3	4	5
23	Bike trails along the river	1	2	3	4	5
24	Fenced play area for children	1	2	3	4	5
25	Concession stands close by	1	2	3	4	5
26	Opportunities for learning about nature	1	2	3	4	5
27	Absence of litter at the recreation area	1	2	3	4	5
28	Areas that are safe from crime	1	2	3	4	5
29	Areas free from undesirable people	1	2	3	4	5
30	Facilities for indoor sports events	1	2	3	4	5

		Very dissatisfied				Very satisfied
31	Presence of a zoo	1	2	3	4	5
32	Easy access to river by walking	1	2	3	4	5
33	Facilities for fishing	1	2	3	4	5
34	Cheap public transportation to the river and area	1	2	3	4	5
35	Safe public transportation to the river and area	1	2	3	4	5
36	Adequate law enforcement near river	1	2	3	4	5
37	Adequate maintenance of the river and surrounding area (repairing damage, general upkeep, etc.)	1	2	3	4	5
38	Good information and signs telling how to get to the river	1	2	3	4	5
39	Presence of other recreational area nearby	1	2	3	4	5
40	Facilities for water sports (rafting, tubing, etc.)	1	2	3	4	5
41	Range of different kinds of places to go	1	2	3	4	5
42	Range of different kinds of things to do	1	2	3	4	5
43	Cultural activities (art, music, etc.)	1	2	3	4	5
44	Facilities for older citizens	1	2	3	4	5
45	Historical landmarks and exhibits	1	2	3	4	5
46	Facilities for handicapped citizens	1	2	3	4	5
47	Development of White River throughout county as opposed to certain neighborhoods	1	2	3	4	5
48	Development of White River throughout county as opposed to the downtown area	1	2	3	4	5

Energy and Recreation

1. Do you use your car less for recreation now than you used to due to higher gasoline prices? (Circle Number)

   1 YES
   2 NO

2. Has the distance you travel for recreation changed any due to higher gasoline prices?

   1 DECREASED SUBSTANTIALLY
   2 DECREASED A LITTLE
   3 STAYED THE SAME
   4 INCREASED A LITTLE
   5 INCREASED SUBSTANTIALLY

3. Has your use of local parks changed any due to the higher costs of gasoline? (Circle Number)

   1 DECREASED SUBSTANTIALLY
   2 DECREASED A LITTLE
   3 STAYED THE SAME
   4 INCREASED A LITTLE
   5 INCREASED SUBSTANTIALLY

Recreation Development

1. Do you want to see the areas along the river that you use developed for more recreation? (Circle Number)

   1 YES
   2 NO

2. If the areas you use were developed further for recreation would you still use those places?

   1 YES
   2 NO
   3 NOT SURE

3. Which areas along the river would you like to see developed first for recreation use?

   1st CHOICE _____

   2nd CHOICE _____

Fishing along the White River

1. How often do you fish the White River? (Circle Number)

   1 NEVER
   2 SELDOM
   3 OFTEN
   4 VERY OFTEN

2. When you go fishing, is it for: (Circle Number)

   1 FOOD
   2 SPORT
   3 BOTH
   4 DON'T FISH

3. What kind of fish do you try to catch?

   _____

4. What time of day or night do you usually go fishing? (Circle Number)

   1 MORNING (5 a.m. to 12:00 noon)
   2 AFTERNOON (12:00 noon to 6:00 p.m.)
   3 EVENING (6:00 p.m. to 9:00 p.m.)
   4 NIGHT (9:00 p.m. to 5:00 a.m.)
   5 DON'T FISH

5. Do you feel that fishing is good along the White River? (Circle Number)

   1 POOR
   2 FAIR
   3 GOOD
   4 EXCELLENT
   5 DON'T KNOW

Background Information

This information is important to the success of this study and aids in making predictions about White River in the future. All of the information is strictly confidential and will not be associated with you as an individual.

1. What is your present age? _____ yrs.

2. What is your sex? 1 MALE 2 FEMALE

3. What is your marital status? (Circle Number)

   1 SINGLE
   2 SEPARATED, DIVORCED, WIDOWED
   3 MARRIED
   4 OTHER _____

4. What is your ethnic background? (Circle Number)

1 BLACK
2 WHITE (CAUCASIAN)
3 HISPANIC
4 ORIENTAL
5 OTHER _____

5. What is your present occupation?

Job title _____

Kind of industry or business _____

_____

6. What was your family's total income last year? (Circle Number)

1	less than 3000	5	10,000-14,999
2	3000-5999	6	15,000-19,000
3	6000-7999	7	20,999-29,000
4	8000-9999	8	30,000+

7. How much education have you had?

1 NO FORMAL EDUCATION
2 SOME OR COMPLETED GRADE SCHOOL
3 SOME HIGH SCHOOL
4 COMPLETED HIGH SCHOOL
5 SOME OR COMPLETED TRADE SCHOOL
6 SOME COLLEGE
7 COMPLETED COLLEGE
8 GRADUATE WORK OR DEGREE

IF YOU HAVE ANY COMMENTS OR SUGGESTIONS YOU WOULD LIKE TO MAKE, PLEASE WRITE THEM ON THE BACK OF THIS SURVEY. PLEASE PUT THIS SURVEY IN THE ENCLOSED, STAMPED ENVELOPE AND MAIL IT TO US. THANK YOU FOR YOUR TIME AND YOUR COOPERATION.

U R B A N R I V E R R E C R E A T I O N S U R V E Y

Urban River Recreation Project
Purdue University
Department of Forestry and Natural Resources
West Lafayette, Indiana 47907

URBAN RIVER RECREATION SURVEY

This is a voluntary survey. While you are not required to answer, please complete this questionnaire as soon as you can. Your answers are very important to the success of this study. Thank you.

1. Do you think the White River is an important recreation resource in this area? (Please Circle Number)

   1 NOT AT ALL IMPORTANT
   2 SOMEWHAT IMPORTANT
   3 VERY IMPORTANT

2. Is it important for you to be able to drive your car to the river's edge? (Please Circle Number)

   1 NOT AT ALL IMPORTANT
   2 SOMEWHAT IMPORTANT
   3 VERY IMPORTANT

3. If you could not drive to the river's edge, would you still use the river? (Circle Number)

   1 YES
   2 NO

4. How far would you be willing to walk to reach the river's edge? (Circle Number)

   1 SHOULD NOT HAVE TO WALK AT ALL
   2 UP TO 300 FEET
   3 ABOUT 1/8 MILE
   4 ABOUT 1/4 MILE
   5 MORE THAN 1/4 MILE

5. What kinds of activities do you participate on or around the river? (Circle Number)

   1 BOATING
   2 CANOEING/KAYAKING
   3 WATERSKIING
   4 SWIMMING
   5 BICYCLING
   6 DRIVING FOR PLEASURE
   7 OUTDOOR GAMES/SPORTS
   8 PHOTOGRAPHY
   9 PICNICKING
   10 FISHING
   11 OFF-ROAD VEHICLES
   12 HORSEBACK RIDING
   13 JOGGING
   14 WALKING FOR PLEASURE
   15 OTHER_____
   _____

Your Ideal River Recreation Facility and Surroundings

Please think about what any good park in a river setting must have in it, or very close by it, for you to use and enjoy the park.

How much do you need the following to be present in a park in a river setting for you to use and enjoy the park? Also, consider how important some of the

issues are in establishing such a park. Circle any one of the 5 numbers for each thing. The lower the number, the less important it is to you.

		Don't care				Definitely must be there
1	Places to go swimming	1	2	3	4	5
2	Facilities for outdoor games/sports	1	2	3	4	5
3	Clean river water	1	2	3	4	5
4	Natural areas along river	1	2	3	4	5
5	Presence of trees and shade	1	2	3	4	5
6	Presence of wildlife/birds	1	2	3	4	5
7	Places to recreate with family	1	2	3	4	5
8	Opportunities to meet new people	1	2	3	4	5
9	Open areas	1	2	3	4	5
10	Facilities for boating	1	2	3	4	5
11	Places to go fishing	1	2	3	4	5
12	Opportunities to be with friends	1	2	3	4	5
13	Facilities for canoeing/kayaking	1	2	3	4	5
14	Easy access to the river	1	2	3	4	5
15	Jogging trails	1	2	3	4	5
16	Odor of river water	1	2	3	4	5
17	River water that is free of weeds/algae	1	2	3	4	5
18	Opportunities for water skiing	1	2	3	4	5
19	Bike trails	1	2	3	4	5
20	Opportunities to learn about nature	1	2	3	4	5
21	Picnicking facilities	1	2	3	4	5
22	Facilities for indoor sports/events	1	2	3	4	5
23	Maintenance of area	1	2	3	4	5
24	Chances for privacy	1	2	3	4	5

25	Scenic beauty	1	2	3	4	5
26	Hiking/walking trails	1	2	3	4	5
27	Easy walking access	1	2	3	4	5
28	Parking along river	1	2	3	4	5
29	Place to escape from everyday routine	1	2	3	4	5
30	Convenient public transportation	1	2	3	4	5
31	Safe from crime	1	2	3	4	5
32	Horseback riding	1	2	3	4	5
33	Facilities for senior citizens	1	2	3	4	5
34	Free from undesirable people	1	2	3	4	5
35	Opportunities to try skills and abilities	1	2	3	4	5
36	Information and signs	1	2	3	4	5
37	Facilities for handicapped citizens	1	2	3	4	5
38	Opportunities for exercise/physical fitness	1	2	3	4	5
39	Cultural and historical activities and facilities	1	2	3	4	5
40	Law enforcement along river	1	2	3	4	5
41	Safe public transportation	1	2	3	4	5
42	Opportunities for developing skills and abilities	1	2	3	4	5
43	Chance to escape from pressure	1	2	3	4	5
44	Opportunities to observe people	1	2	3	4	5

Your Views on Present Areas along the River

How satisfied are you at present with each of the following things along the White River? Please circle any one of the 5 numbers to describe its present condition. The higher numbers mean that you are more satisfied.

		Very dissatisfied				Very satisfied
1	Places to go swimming	1	2	3	4	5
2	Facilities for outdoor games/sports	1	2	3	4	5
3	Clean river water	1	2	3	4	5
4	Natural areas along river	1	2	3	4	5
5	Presence of trees and shade	1	2	3	4	5
6	Presence of wildlife/birds	1	2	3	4	5
7	Places to recreate with family	1	2	3	4	5
8	Opportunities to meet new people	1	2	3	4	5
9	Open areas	1	2	3	4	5
10	Facilities for boating	1	2	3	4	5
11	Places to go fishing	1	2	3	4	5
12	Opportunities to be with friends	1	2	3	4	5
13	Facilities for canoeing/kayaking	1	2	3	4	5
14	Easy access to the river	1	2	3	4	5
15	Jogging trails	1	2	3	4	5
16	Odor of river water	1	2	3	4	5
17	River water that is free of weeds/algae	1	2	3	4	5
18	Opportunities for water skiing	1	2	3	4	5
19	Bike trails	1	2	3	4	5
20	Opportunities to learn about nature	1	2	3	4	5
21	Picnicking facilities	1	2	3	4	5

22	Facilities for indoor sports/events	1	2	3	4	5
23	Maintenance of area	1	2	3	4	5
24	Chances for privacy	1	2	3	4	5
25	Scenic beauty	1	2	3	4	5
26	Hiking/walking trails	1	2	3	4	5
27	Easy walking access	1	2	3	4	5
28	Parking along river	1	2	3	4	5
29	Place to escape from everyday routine	1	2	3	4	5
30	Convenient public transportation	1	2	3	4	5
31	Safe from crime	1	2	3	4	5
32	Horseback riding	1	2	3	4	5
33	Facilities for senior citizens	1	2	3	4	5
34	Free from undesirable people	1	2	3	4	5
35	Opportunities to try skills and abilities	1	2	3	4	5
36	Information and signs	1	2	3	4	5
37	Facilities for handicapped citizens	1	2	3	4	5
38	Opportunities for exercise/physical fitness	1	2	3	4	5
39	Cultural and historical activities and facilities	1	2	3	4	5
40	Law enforcement along river	1	2	3	4	5
41	Safe public transportation	1	2	3	4	5
42	Opportunities for developing skills and abilities	1	2	3	4	5
43	Chance to escape from pressure	1	2	3	4	5
44	Opportunities to observe people	1	2	3	4	5

Energy and Recreation

1. Do you use your car less for recreation now than you used to due to higher gasoline prices? (Circle Number)

   1 YES
   2 NO

2. If you use your car less, have you increased your use of the following:

   1 BICYCLE
   2 MOTORCYCLE
   3 WALKING
   4 PUBLIC TRANSPORTATION
   5 OTHER (Please specify) _____

3. Has the distance you travel for recreation changed any due to higher gasoline prices? (Circle Number)

   1 DECREASED SUBSTANTIALLY
   2 DECREASED A LITTLE
   3 STAYED THE SAME
   4 INCREASED A LITTLE
   5 INCREASED SUBSTANTIALLY

4. Has your use of local parks changed any due to the higher costs of gasoline? (Circle (Number)

   1 DECREASED SUBSTANTIALLY
   2 DECREASED A LITTLE
   3 STAYED THE SAME
   4 INCREASED A LITTLE
   5 INCREASED SUBSTANTIALLY

Background Information

This information is important to the success of this study and aids in making predictions about White River in the future. All of the information is strictly confidential and will not be associated with you as an individual.

1. What is your present age? _____ yrs.

2. What is your sex? 1 MALE 2 FEMALE

3. What is your marital status? (Circle Number)

   1 SINGLE
   2 SEPARATED, DIVORCED, WIDOWED
   3 MARRIED
   4 OTHER _____

4. What is your ethnic background? (Circle Number)

1 BLACK
2 WHITE (CAUCASIAN)
3 OTHER_____

5. What is your present occupation?

Job title _____

Kind of industry or business _____

_____

6. What was your family's total income last year? (Circle Number)

1 less than 3000
2 3000-5999
3 6000-7999
4 8000-9999
5 10,000-14,999
6 15,000-19,000
7 20,999-29,000
8 30,000+

7. How much eduction have you had?

1 NO FORMAL EDUCATION
2 SOME OR COMPLETED GRADE SCHOOL
3 SOME HIGH SCHOOL
4 COMPLETED HIGH SCHOOL
5 SOME OR COMPLETED TRADE SCHOOL
6 SOME COLLEGE
7 COMPLETED COLLEGE
8 GRADUATE WORK OR DEGREE

IF YOU HAVE ANY COMMENTS OR SUGGESTIONS YOU WOULD LIKE TO MAKE, PLEASE WRITE THEM ON THE BACK OF THIS SURVEY. PLEASE PUT THIS SURVEY IN THE ENCLOSED, STAMPED ENVELOPE AND MAIL IT TO US. THANK YOU FOR YOUR TIME AND COOPERATION.

July 22, 1980

Ø

Dear Ø:

The White River is an important part of Indianapolis. Many people in the city are interested in providing more recreational opportunities along the river and improving the present opportunities. However, it is important to know what people who use the river want and need.

A few days ago we talked with you along the White River and asked a few questions about your recreation use. Now we'd like to ask you your opinions about White River. You are one of a small number of people participating in this study, so it is important that you complete and return this questionnaire (in the addressed, stamped envelope we have provided).

You may be assured that your replies to these few questions will be completely confidential. The questionnaire has an identification number for mailing purposes only.

The results of this research will be made available to groups like the White River Park Commission, and the Indiana Department of Natural Resources to aid them in their planning efforts. You may receive a copy of the results by printing your name and address on the back of the return envelope. Please do not put this information on the questionnaire itself.

I would be very happy to answer any questions you might have. Please write or call. The phone number is (317) 494-6113.

Thank you for your assistance.

Sincerely,

Mary Beth Adams
Graduate Assistant

MBA:lsh

Enclosure

July 24, 1980

Dear :

The White River is an important river resource in the State. Many people are interested in providing more recreational opportunities along the river and improving the present opportunities. However, it is important to know what people who use the river want and need.

The Indiana Department of Natural Resources hosted public meetings to talk with people, like yourself, who have an interest in the White River. We, too are interested in your opinions on recreational development of the river. You are one of a small number of people participating in this study, so it is important that you complete and return this questionnaire (in the addressed, stamped envelope we have provided).

You may be assured that your replies to these few questions will be completely confidential. The questionnaire has an identification number for mailing purposes only.

The results of this research will be made available to groups like the White River Park Commission, and the Indiana Department of Natural Resources to aid them in their planning efforts. You may receive a copy of the results by printing your name and address on the back of the return envelope. Please do not put this information on the questionnaire itself.

I would be very happy to answer any questions you might have. Please write or call. The phone number is (317) 494-6113.

Thank you for your assistance.

Sincerely,

Mary Beth Adams
Graduate Assistant

MBA:lsh

Enclosure

August 26, 1980

Dear :

The White River is an important part of Indianapolis. Many people in the city are interested in providing more recreational opportunities along the river and improving the present opportunities. However, it is important to know what people who use the river want and need.

As a property owner along the White River, you are certainly interested in the different ideas and developments that might occur. We are interested in your opinions on recreational development of the river. You are one of a small number of people participating in this study, so it is important that you complete and return this questionnaire (in the addressed, stamped envelope we have provided).

You may be assured that your replies to these few questions will be completely confidential. The questionnaire has an identification number for mailing purposes only.

The results of this research will be made available to groups like the White River Park Commission, and the Indiana Department of Natural Resources to aid them in their planning efforts. You may receive a copy of the results by printing your name and address on the back of the return envelope. Please do not put this information on the questionnaire itself.

I would be very happy to answer any questions you might have. Please write or call. The phone number is (317) 494-6113.

Thank you for your assistance.

Sincerely,

Mary Beth Adams
Graduate Assistant

MBA:lsh

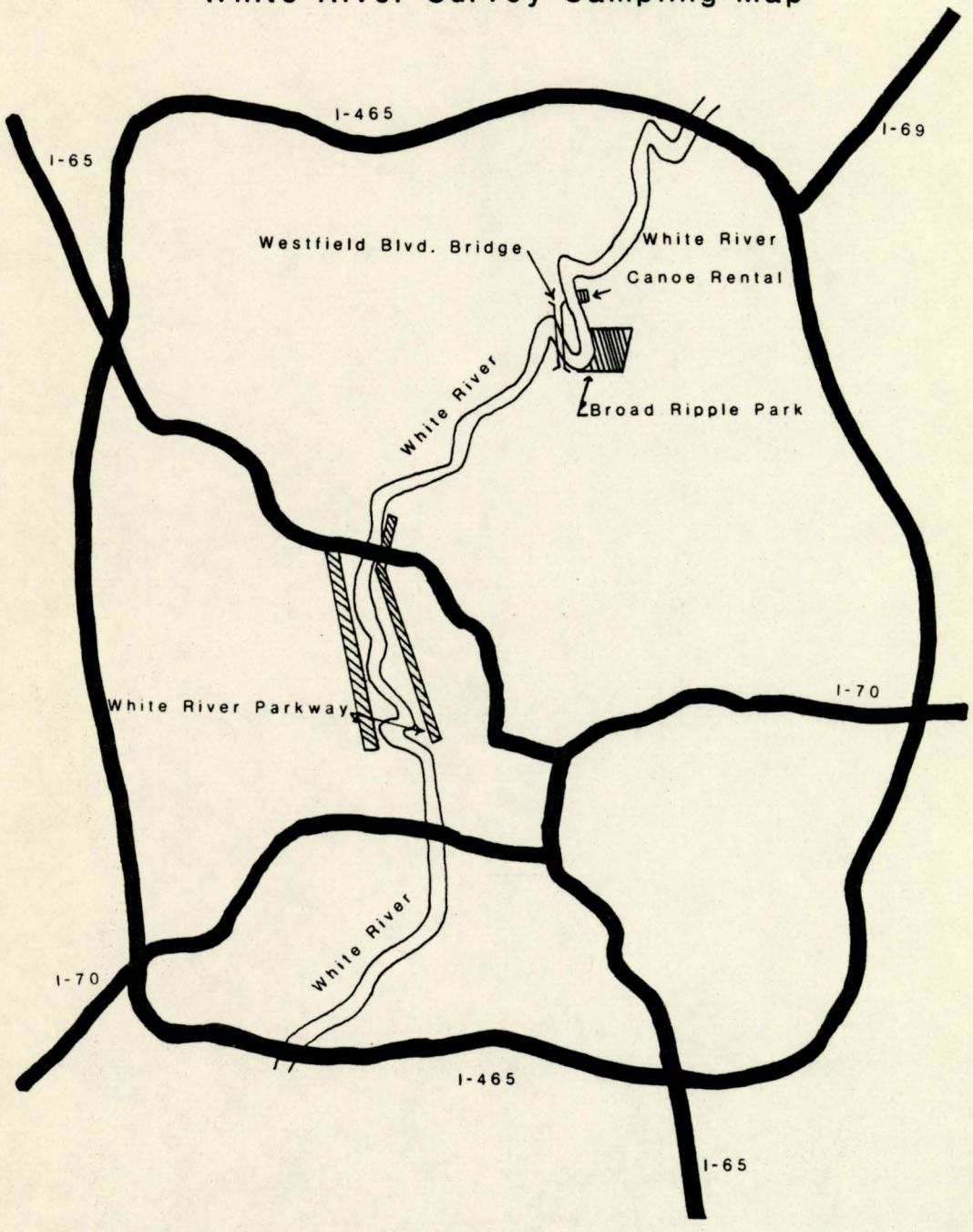
Enclosure

ID. NO.	KEY 1980
1	Places to Swim
2	Facilities for Outdoor Sports and Games
3	Clean River Water
4	Natural Areas
5	Wildlife
6	Trees and Shade
7	Close to Home*
8	Near to Work/Shopping*
9	No Weeds/Algae
10	Easy Access
11	Good Public Transportation
12	Recreate With Friends
13	Facilities for Boats
14	Quiet Areas*
15	Open Areas
16	Family Recreation
17	Places to Walk
18	Hiking Trails
19	Picnicking Facilities
20	Areas for Boating*
21	Areas to Waterski
22	Jogging Trails
23	Bike Trails
24	Fenced Play Area*
25	Concession Stands*
26	Learn About Nature
27	No Litter*
28	Safe From Crime
29	Free From Undesirable People
30	Indoor Sports Facilities
31	Zoo*
32	Easy Walking Access
33	Fishing Facilities
34	Cheap Public Transportation*
35	Safe Public Transportation
36	Law Enforcement
37	Maintenance
38	Information and Signs
39	Other Recreation Areas Nearby*
40	Water Sports Facilities*
41	Range of Places*
42	Range of Activities*
43	Cultural Activities
44	Senior Citizen Facilities
45	Historical Landmarks
46	Facilities for Handicapped Citizens
47	County vs. Neighborhood Development*
48	County vs.Downtown Development*

* Attributes dropped from the questionnaire after the summer of 1980.

ID. NO. KEY 1981

1	Places to Swim
2	Variety of Outdoor Facilities
3	Clean River Water
4	Natural Areas
5	Trees and Shade
6	Wildlife and Birds
7	Family Recreation Places
8	Meet People*
9	Open Areas
10	Boating Facilities
11	Fishing Spots
12	Be With Friends
13	Canoeing/Kayaking*
14	Easy Access
15	Jogging Trails
16	Odor of Water*
17	No Weeds/Algae
18	Waterskiing
19	Bike Trails
20	Learn about Nature
21	Picnicking Facilities
22	Indoor Sports Events
23	Maintenance
24	Privacy*
25	Beauty*
26	Hiking/Walking Trails
27	Walking Access
28	Parking Along the River*
29	Escape From Routine*
30	Convenient Public Transportation
31	Crime
32	Horseback Riding*
33	Facilities for Senior Citizens
34	Free From Undesirable People
35	Try Skills and Abilities*
36	Information and Signs
37	Facilities for Handicapped Citizens
38	Exercise and Physical Fitness*
39	Cultural and Historical Landmarks
40	Law Enforcement
41	Safe Public Transportation
42	Develop Skills and Abilities*
43	Escape From Pressure*
44	Observe People*

* Attributes added to the survey for summer 1981.

White River Survey Sampling Map